INTERCITY TRAVEL AND THE DEAF AND HARD OF HEARING TRAVELLER

AN ANALYSIS OF THE CURRENT STATE OF ACCESSIBILITY

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AN ANALYSIS OF THE CURRENT STATE OF ACCESSIBILITY

BY

THE CANADIAN HEARING SOCIETY

CONSULTANT: THE BEHAVIOURAL TEAM

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Margaret E. FitzPatrick, M.M.St.
Ben Barkow, Ph.D.
Joan Beattie

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The Canadian Hearing Society
271 Spadina Road
Toronto, Ontario M5R 2V3

Consultant:
Behavioural Team, A Corporation
Suite 202
21 Vaughan Road
Toronto, Ontario M6G 2N2

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16. Abstract

This report presents an analysis of Canadian intercity transportation facilities and their accessibility to deaf and hard of hearing travellers. It places particular emphasis on both physical design of facilities and the availability of assistive devices.

Data were collected through 1) personal visits to and observations of airports, train stations, and bus and ferry terminals across Canada, and 2) a mail-out survey to deaf and hard of hearing individuals across the country. The primary goal of this survey was the identification of specific problems encountered in travel, as well as a general overview of accessibility.

In addition to site visits and the survey, interviews and discussions were held with management and staff at all transport facilities visited.

Following an analysis and discussion of all findings, recommendations are made for improvements to transportation facilities as well as for further research and development which will be of benefit to deaf and hard of hearing travellers, and to those without hearing impairments.

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La Société Canadienne de l'Ouïe
271 Spadina Rd.,
Toronto, Ontario,
M5R 2V3

/

Behavioural Team, A Corporation
Suite 202
21 Vaughan Road
Toronto, Ontario M6G 2N2

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16. Resume

Ce rapport rend compte de l'évaluation faite des installations terminales de transports interurbains, du point de vue des voyageurs sourds ou malentendants, et particulièrement quant à la disposition des lieux et au nombre de dispositifs destinés à les aider.

Les données pertinentes ont été tirées: 1) de visites et d'observations sur place, c'est-à-dire aérogares, gares ferroviaires et terminus d'autocars et de traversiers au Canada, 2) d'un sondage par la poste auprés de personnes sourdes ou malentendantes. Le but de ce sondage a été de cerner les problèmes particuliers gênant leurs déplacements, et d'avoir un aperçu global de ce qui a été fait pour les aider.

De plus, l'opinion de la direction et du personnel de toutes les installations visitées a été obtenue à l'occasion d'interviews et de discussions.

Le rapport en fait l'analyse et formule des recommandations visant à rendre ces installations encore plus accessibles. Il indique également les travaux de recherche et de développement à faire que pourront profiter au public voyageur, souffrant d'un handicap auditif ou non.

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INTERCITY TRAVEL AND THE DEAF AND HARD OF HEARING TRAVELLER: PREFACE

June 5, 1989

The terms deaf and hard of hearing cover a wide range of hearing losses from profound, almost total deafness to a minimal, slightly inconveniencing loss. People with hearing losses all have a common problem – difficulty in communicating. For those with profound losses, the communication problem is constant and interferes dramatically with their ability to function in a world which depends on communication. For those with minimal losses, communication problems will be minimal, but they do exist.

Many people with mild to moderate hearing losses are not even really aware that their hearing is no longer normal. They function well in reasonably quiet situations and when they are talking to only one or two people. They run into difficulties, however, when they find themselves in large groups or in noisy situations. As they are often not aware of their hearing loss, they tend to blame communication difficulties on other people. They complain that people do not speak clearly and that most people mumble. They also have great difficulty in understanding public address announcements and, again, tend to blame the poor quality of the system.

People with moderate to severe hearing losses frequently wear hearing aids. Hearing aids do exactly what their name implies; they aid hearing, but they do not restore it to normal. They do have some inherent problems.

The human ear, when it is functioning properly, is a marvellous instrument. It can pick up sounds over a considerable distance, can select those sounds which the individual wants to hear and can determine the direction from which the sounds are coming. Hearing aids do not, unfortunately, have the same degree of flexibility. They pick up over a limited distance and amplify all sounds, not just the speech sounds which people want to hear and understand.

In order to communicate easily, hearing aid users need to be close to the person to whom they are speaking and need reasonably quiet surroundings. They also rely to a large extent, either consciously or unconsciously, on lip reading so that they need to be able to see the face of the person to whom they are speaking. It is often extremely difficult for them to understand announcements over a public address system.

People with severe to profound losses fall into two broad categories. Some of them use very powerful aids and rely heavily on lip reading. This group uses speech to communicate, but their speech may be imperfect and difficult to understand. Many have difficulty in knowing how to modify their own voices so they may speak either too softly or far too loudly.

The other group of people with severe to profound losses are those who do not use speech but whose main method of communication is by sign language. Some of this

group do use hearing aids and may have some speech and lip-reading ability. To communicate effectively, however, they use their own language – American Sign Language (ASL). French deaf people use la Langues de Signes Quebecois (LSQ).

Both forms of sign language are distinct languages with their own vocabulary, grammar, and syntax. Because they are visual, rather than auditory languages, their structures are very different from those of English or French. There are no written forms of ASL and LSQ, so that deaf children are taught to read and write in English or French which are foreign languages to them. This has a major effect on reading and writing skills which are often limited. The best way to communicate with deaf people (in the absence of a knowledge of sign language or of a sign language interpreter) is by writing. It is important that hearing people recognize the difficulties which deaf people have with written language.

Approximate numbers of deaf and hard of hearing people in Canada include:

Mild to moderate losses	*1,395,000*
Moderate to severe losses	*939,000*
Severe to profound losses	*201,000*
Total	***2,535,000***
Hearing aid users	*400,000*

In undertaking this study of transportation terminals, the results supported our beliefs that most of the problems encountered by deaf and hard of hearing people related to communication difficulties. Unlike physically or visually disadvantaged people, deaf and hard of hearing people are not in danger in terminals, except in the rare circumstance of an emergency evacuation of a terminal. However, they often find using terminals frustrating and confusing.

Over the years, the Canadian Hearing Society has heard many stories from deaf and hard of hearing people of taking the wrong bus, airplane or train because of announcements of gate changes which they did not hear. While terminal or carrier personnel are supposed to check tickets, gate changes most frequently occur at times of disruption of service, often due to weather conditions, when staff are most harrassed. It is at times like this that human error often occurs and deaf and hard of hearing people find themselves going to Halifax instead of Vancouver.

The scope of this study did not include the carriers. It is onboard that deaf and hard of hearing people are most susceptible to serious problems and even dangerous situations. Emergency evacuation procedures on any of the various types of carriers do not take into account the types of problems posed by a deaf or hard of hearing person who will not understand verbal information. This could be a particularly serious concern where people are isolated, as in sleeping compartments on trains, unless special

procedures are introduced to deal with these special needs.

Airplanes are a particular cause for concern in emergencies. Even on the most routine flights, turbulence is often encountered and instructions are given to passengers. Deaf and hard of hearing people can cause problems for the cabin crew because of their lack of understanding of the situation. They can become a hazard to themselves and to others.

One shudders to think of the problems that could arise in more serious emergencies. Imagine a situation with a highjacker if a deaf person, not understanding the instructions, were to start to walk down the aisle towards the highjacker. Such action could endanger the lives of everyone.

There are fairly simple procedures which could be introduced to deal with the problems of deaf and hard of hearing people on carriers. However, it does require that all levels of transportation personnel be aware of the problems and that they be willing to undertake the introduction of the necessary procedures.

The Canadian Hearing Society was very pleased to participate in this study of the problems of intercity travel for the deaf and hard of hearing traveller. We are all too aware that little research has been done in regards to the problems encountered by deaf and hard of hearing people. As can be seen by the literature search that was done as part of this study, there is very little material available. This study, while it does not tell us a great deal that we did not already know in general, does provide some of the basic research that has been missing.

SUMMARY

The Canadian Hearing Society, in consultation with Behavioural Team, has attempted to supplement available research information with a study of the difficulties encountered by the deaf and hard of hearing individual in the process of intercity travel.

The goals of this study were three-fold:

1. to identify obstacles to the successful use of transportation facilities by the deaf and hard of hearing traveller;

2. to identify assistive devices currently in use in transport facilities, as well as any problems with their use, and

3. to formulate recommendations for further research, development, and implementation relating to the needs of the deaf and hard of hearing public.

Activities undertaken include:

1. a review of the implications of impending technologies,

2. a review and analysis of transportation facilities across Canada, including a sampling of air, rail, bus, and ferry terminals, and

3. contact with the Canadian deaf and hard of hearing travelling public.

Interestingly, very little current information on the travel needs and patterns of the deaf and hard of hearing travelling public is available through published or on-line sources. The findings of this study are therefore drawn largely from a series of twenty site visits, as well as contact with the deaf and hard of hearing public, including a survey of the memberships of the Canadian Hard of Hearing Association, and the Canadian Association for the Deaf. A review of available literature, as well as contact with both Gallaudet University (Washington, D.C.) and National Technical Institute for the Deaf (Rochester, New York), revealed that little relevant material has been generated in the last decade.

TRANSPORTATION FACILITIES

Careful examination was made of airports, train and bus stations, and ferry terminals across the country. Emphasis was on *access to* facilities as well as on the premises themselves. Careful consideration was given to the problems of both the well-wisher, greeter, and the traveller. An attempt was made to identify examples of new technology currently in use which inadvertently discriminate against the deaf and hard of hearing user in addition to examining the effectiveness of facilities designed and installed with the deaf or hard of hearing user in mind.

Features of transportation facilities examined and evaluated include :

- *Communication devices*, including the availability of public accessible TDDs, hearing aid compatible and adjustable volume telephones, as well as appropriate directional signage;

- *Traveller information*, including visual delivery of information regarding arrival and departure, the quality of delivery, and the use of public address systems;

- *Special procedures for deaf and hard of hearing users*, including sensitivity training for front-line staff and the use of pre-boarding procedures; and

- *Emergency procedures*, including the use of visual alarm systems and "human policing" during emergency situations.

For the most part, results were uniform across the four transportation modes, although airports proved to be more accessible in terms of communication devices, while ferry terminals were rated higher in terms of emergency procedures. It should be noted, however, that this is at best a subjective assessment. Generally, Canadian transport terminals as observed by the project team are without visual alarm systems. One ferry terminal (of the two visited) did indeed have an emergency strobe system coupled with a light system to indicate boarding. Furthermore, these lights were included in key areas such as washrooms.

CONTACT WITH THE PUBLIC

In addition to ongoing input from the Canadian Hearing Society, the Canadian Hard of Hearing Association (CHHA) and the Canadian Association for the Deaf (CAD), the more intense concentration of public contact was in the form of a survey examining both the travel habits of deaf and hard of hearing Canadians, and their experiences –negative and positive– in transportation facilities across the country. A total of almost 1000 surveys were mailed out to the members of the Canadian Hard of Hearing Association and the Canadian Association for the Deaf. Of this number, a total of 196 surveys were returned in time for data analysis, for a return rate of 20%. For the purposes of this survey, this can be considered an adequate sample size. It is particularly noteworthy that the survey of members of the Canadian Association for the Deaf yielded a return rate of 10%. This is impressive in light of the limited language skills of many deaf people.

Conclusions

Based on the analysis of survey data, a number of conclusions can be drawn with regard to the accessibility of transport facilities to the deaf and hard of hearing user.

Data indicate that deaf and hard of hearing users encounter the same problems in all modes of transportation examined. These problems are primarily in the area of communications. For example, while respondents feel that travel personnel are well meaning in their efforts to assist the traveller, they are lacking in specific training which would faciliate communication. As well, both deaf and hard of hearing respondents indicate some difficulty in locating technical aids such as TDDs, adjustable volume telephones, etc. More attentions should be paid to the correct positioning of these devices, as well as to the installation of proper directional and identification signage.

Demographics

Hard of hearing respondents were primarily seniors, with over 50% aged 60 years and over. Of this number, 65% had their hearing loss after age 22.

The profile of deaf respondents is different. Two-thirds of this group were between the ages of 30 and 50. All were impaired before the age of 12, with 72% having their hearing loss at birth or before the age of 4.

Respondents were asked what communication aids they used. Among hard of hearing respondents, the most common are hearing aids (73%), hearing aids combined with speech reading (52%), a hearing companion (40%), and speech reading (38%). Among deaf respondents, the more common aids include sign language (94%), speech reading, and the use of an interpreter (50% each).

Among the hard of hearing respondents, 47% described themselves as "moderately" or "mildly" hard of hearing and the remainder as more severely hard of hearing or deaf.

Data applicable to all modes of travel

Respondents tend to be aware of terminal features because of being travellers (more than 80% of the sample). Approximately 10%, however, are acquainted with the terminals reported in this chapter only as well-wishers (greeting or saying farewell). For ferries, no one was exclusively a well-wisher!

Respondents were asked about effectiveness of telephones in terminals. The hard of hearing group was split on the effectiveness with hearing aids, convenience of locations, location marking, ease of using with a wheelchair, and adaptability for a TDD. There was, however, some sentiment that more volume control units should be installed. The deaf group was generally less satisfied with phones, especially in terms of location. (These results were similar for all modes of travel.)

Respondents were generally quite pleased with staff behaviour, strongly endorsing their helpfulness and patience, but doubting how fully staff are trained to work with travellers with this disability. For example, 83% of hard of hearing individuals found staff helpful. Only 30% thought that staff knew they should look directly at customers. Despite good

attitudes on the part of staff, no mode had more than about a third of respondents finding staff *able* to communicate by other methods even though their attitudes were friendly.

When asked to pinpoint problems in the travel experience, the most frequently indicated problems for both groups were those involving the delivery of important traveller information. This is true for both in terminals and onboard vehicles.

RECOMMENDATIONS FOR IMPROVED ACCESSIBILITY

Based on analysis of survey results, as well as on the twenty site visits made during the course of research, we have formulated a number of recommendations for the improvement of the current state of accessibility in Canadian transportation facilities.

While the mandate of our project was to address specifically the needs of the deaf and hard of hearing traveller, it is with some pleasure that we note the benefits of these changes to all potential users of airports and bus, train, and ferry terminals.

It is also noteworthy that the focus of our findings and recommendations is very much in the area of implementation. *The major problems rest not so much in the lack of suitable technology as in its conspicuous absence in airports, bus and train stations, and ferry terminals.*

For the most part, these recommendations do not represent a sizeable measure of financial outlay or of logistical difficulty for the facilities in question. In general, all can be implemented during routine maintenance and upgrading of facilities or at times of staff recruitment. Efforts made to meet these recommended changes will undoubtedly result in better relations between facility operators/carriers and the travelling public.

This is not to say, however, that there is no further need for research and development. While current technology does indeed address many of the needs identified in this study, there is room for further development in all areas. This includes keyboard entry for changeable message signs, improved human/computer interface for on-line translation and information systems, and improvements and advances in facsimile and TDD equipment.

Communication devices

All transport facilities should be better equipped with communications devices for the use of deaf and hard of hearing travellers. These devices include hearing aid compatible telephones, tDDs, and adjustable volume telephone handsets in both standard payphones and in telephones equipped with card reader and other features. Care should be taken to ensure that these phones are installed in readily accessible locations, and in sufficient numbers to meet the needs of the deaf and hard of hearing travelling public.

Traveller Information

All travel information (departures, arrivals, etc.) should be delivered orally and visually. Visual back-up systems might include flip-disc, LFD, or LCD signage. When necessary, all paging should be integrated into this system. In addition, when warranted by facility size and traffic flow, facilities should be equipped with an information kiosk, preferably equipped with an assistive device such as an infrared system, as well as printers for all information.

To adequately address the information needs of incoming calls, all facilities should be equipped with a TDD, the number of which is clearly listed in telephone and information directories.

Special procedures for deaf and hard of hearing users

The focus here is on improved training for all front-line staff. Training should include a minimum of one half day's training in the proper use of assistive devices. In addition, staff should receive instruction in the methods of communicating with deaf and hard of hearing travellers. This training should be complemented by the redesign of work stations to allow maximum eye contact between staff and personnel.

When feasible, a sign language interpreter should be included on staff. At the very least, staff should be equipped with a sign language card showing the basic signs required for communication.

Emergency procedures

All fire or other warning systems should be supplemented by visible signals such as flashing lights or strobes located in public areas, especially those with some degree of isolation.

Further Research and Development

The results of this study indicate that there is much room for research and development of electronic messaging equipment not requiring the presence of an attendant. As well, a follow-up study should be undertaken to examine the problems encountered by the deaf and hard of hearing traveller onboard the transport vehicle. Finally, consideration should be given to researching the travel needs of the multiply-disabled.

SOMMAIRE

La Société canadienne de l'ouïe, en consultation avec la société Behavioural Team, a mené une étude visant à faire le point sur les difficultés qui se présentent aux handicapés de l'ouïe dans les installations terminales de transport.

Cette étude visait trois grands objectifs :

1. définir les obstacles auxquels font face les voyageurs malentendants ou sourds dans les installations terminales de transport;

2. recenser les aides à l'orientation pour les handicapés de l'ouïe actuellement en usage dans les installations terminales de transport et évaluer leur efficacité;

3. formuler des recommandations quant à la voie que devraient prendre les travaux de recherche, de développement et d'aménagement des installations pour faciliter l'accès aux transports des handicapés de l'ouïe.

Les chercheurs ont procédé de la façon suivante :

1. examen des répercussions que peuvent avoir les plus récents développement technologiques;

2. examen des installations de transport à travers le pays, portant en particulier sur un échantillonnage d'installations terminales du transport aérien, ferroviaire, maritime et routier;

3. consultation de la population canadienne atteintes de problèmes de l'ouïe.

On a pu constater qu'il existe très peu de données récentes sur les habitudes et les besoins des handicapés de l'ouïe en matière de déplacements, tant dans la documentation publiée que celle qui est informatise. En effet, un dépouillement de la documentation existante et des consultations auprès de Gallaudet University (Washington, D.C.) et du National Technical Institute for the Deaf (Rochester, New York) ont révélé que très peu de données ont été recueillies sur ce sujet dans les dix dernières années. Les conclusions de la présente étude sont par conséquent fondées en grande partie sur des visites d'installations et sur la consultation des premiers intéressés, notamment sous forme d'un sondage auprès des membres de l'Association canadienne des sourds et de l'Association canadienne des malentendants.

VISITE DES INSTALLATION TERMINALES DE TRANSPORT

Un total de vingt installations terminales de transport à travers le pays, soit des aérogares et des gares ferroviaires, routières et maritimes, ont été examinées

minutieusement tant sous l'aspect de l'accessibilité des lieux que du reste des aménagements. Il a été tenu compte du point de vue des usagers qui s'y rendent pour accueillir ou pour raccompagner des voyageurs aussi bien que de celui des voyageurs eux-mêmes. Les chercheurs ont tenté, d'une part, de repérer les équipements de technologie nouvelle qui défavorisent les handicapés de l'ouïe et, d'autre part, d'évaluer l'efficacité des aménagements spécialement prévus à leur intention.

Les installations ont été examinées sous les aspects suivants :

• dispositifs de communication, en particulier, savoir si les installations considérées étaient dotées dappareils de télécommunication pour malentendants (ATME), de téléphones à volume réglable ou compatibles avec les appareils auditifs, d'un système de signalisation convenable;

• information des usagers, en particulier, savoir si les installations considérées étaient dotées d'un système visuel de diffusion des informations concernant les heures de départ et d'arrivée, qualité de l'affichage le cas échéant, mode d'utilisation du système de sonorisation;

• mesures spéciales visant les handicapes de l'ouïe; c'est-à-dire sensibilisation du personnel de première ligne et embarquement prioritaire pour cette catégorie d'usagers;

• mesures en cas d'urgence, y compris l'utilisation de systèmes d'alarme visuels et l'intervention de personnel spécialement formé.

Dans l'ensemble, la situation s'est avérée à peu près pareille pour les quatre modes de transport, à ces différences près que les systèmes de communication sont mieux adaptés dans les aérogares et les mesures en cas d'urgence plus élaborées dans les gares maritimes. Il ne faut cependant pas oublier qu'il ne peut s'agir là que d'un jugement subjectif. On a pu constater que les installations terminales de transport au Canada sont généralement dépourvues de systèmes d'alarme visuels. Une des deux gares maritimes visitées est toutefois équipée d'un système d'alarme visuel à éclats, relié au système lumineux de signalisation d'embarquement, et ce système s'étend la grandeur de l'installation et jusque dans les toilettes.

CONSULTATION DES USAGERS

À part l'information fournie continuellement par la Société canadienne de l'ouïe, l'Association canadienne des malentendants et l'Association canadienne des sourds, l'opinion des usagers sourds et de malentendants a été sollicitée principalement sous forme d'un sondage portant sur leurs habitudes de déplacement et leurs expériences, positives ou négatives, dans les installations terminales de transport à travers le Canada. Environ mille questionnaires ont été envoyés à des membres de l'Association

des malentendants et de l'Association canadienne des sourds, 196 questionnaires ont été retournes a temps pour l'analyse, soit un taux de réponse de 20 p.100, ce qui, dans le cas présent, constitue un échantillon représentatif. Il est assez impressionnant de constater que la moitié des réponses provenaient de membres de l'Association canadienne des sourds, compte tenu que bon nombre de personnes atteintes de surdité complète ont des aptitudes langaguières limitées.

Conclusions

Les résultats de ce sondage ont permis de tirer plusieurs conclusions quant à l'accessibilité des moyens de transport aux handicapés de l'ouïe. Il appert que les personnes sourdes ou malentendantes rencontrent toujours les mêmes problèmes, peu importe le mode de transport emprunté, et qu'il s'agit le plus souvent de problèmes de communication. Par exemple, on a répondu que les membres du personnel faisaient bien leur possible pour aider les voyageurs atteints de déficience auditive, mais qu'ils n'ont pas la formation voulue pour communiquer avec eux de façon efficace. De plus, les aides prévues pour les handicapés de l'ouïe, telles que téléphone à volume réglable, appareils ATME, etc., ne sont pas toujours faciles à repérer. Ces équipements devraient être mieux situés et mieux signalés.

Statistiques

La plupart des malentendants qui ont répondu au questionnaire sont des personnes âgées, plus de 50 p.100 d'entre elles ayant 60 ans et plus. Dans 65 p.100 des cas, la perte auditive est survenue passé l'âge de 22 ans.

Le profil du groupe des personnes sourdes est différent, deux tiers des personnes de ce groupe sont âgées de 30 à 50 ans. outes ont perdu l'ouïe avant l'âge de 12 ans, 72 p.100 d'entre elles étant sourdes de naissance ou ayant perdu l'ouïe avant l'âge de 4 ans.

Une des questions posées portait sur le type d'aide à la communication utilisé. Chez les personnes malentendantes, les aides ,les plus courantes sont les appareils auditifs (73 p.100), les appareils auditifs e la lecture sur les lèvres (52 p.100), un compagon ayant l'usage de l'ouïe (40 p.100) et la lecture sur les lèvres (38 p.100). Chez les personnes sourdes, ce sont le langage gestuel (94 p.100). La lecture sur lèvres (50 p.100) et l'assistance d'un interprète (50 p.100)

Parmi les malentendants, 47 p.100 se sont déclarée légèrement ou moyennement atteintes, et le reste comme étant gravement atteintes, approchant même de la surdité complète.

Données applicables à tous les modes de transport

La plupart des personnes qui ont répondu au questionnaire (plus de 80 p.100) connaissent les installations terminales de transport en tant que voyageurs. Toutefois, environ 10 p.100 d'entre elles ont dit ne connaître les installations visitées aux fins de la présente étude que pour y avoir été accueillir ou accompagner quelqu'un. Dans le cas des gares maritimes, tous ceux qui les connaissaient en avaient eu l'expérience à titre de voyageurs.

Le questionnaire demandait d'évaluer l'efficacité des téléphones dans les installations de transport. Les opinions des personnes malentendantes étaient partagées quant à la compatibilité des combinés avec les appareils auditifs, au choix des emplacements, à la signalisation, à la facilité d'accés pour les personnes en fauteuil roulant et à compatibilité avec un appareil ATME. Par contre, on semblait d'avis qu'il devrait y avoir un plus grand nombre de téléphones à volume réglable, surtout en ce qui concerne le choix des emplacements. Les résultats étaient les mêmes pour tous les modes de transport.

Dans l'ensemble, les personnes qui ont répondu au questionnaire se sont dites très satisfaites du comportement du personnel et insistaient sur leur patience et leur désir d'aider les usagers qui en ont besoin. Toutefois, elles ont exprimé une certaine réserve quant à leur compétence face aux problèmes des handicapés de l'ouïe. Par example si 83 p.100 des malentendants trouvent que le personnel réussit à les aider, seulement 30 p.100 considèrent que le personnel sait qu'il faut se tourner vers la personne à qui l'on s'adresse, Environ les deux tiers sont d'avis que le personne des services de transport, malgré son attitude avenante propres aux handicapés de l'ouïe, et cette situation est vraie pour tous les modes de transports considérés.

Lorsqu'on leur demande de préciser les problèmes qu'ils ont à affronter lorsqu'ils se déplacent, sourds et malentendants évoquent d'emblée la question de la diffusion des informations intéressant tous les voyageurs. Ce problème se présente aussi bien à bord des véhicules que dans les installations terminales.

RECOMMANDATIONS VISANT À REHAUSSER L'ACCESSIBILITÉ DES TRANSPORTS

L'analyse des résultats du sondage ainsi que les visites des vingt installations terminales choisies ont permis aux chercheurs de formuler un certain nombre de recommandations visant à rendre les services de transport au Canada plus accessibles aux handicapes de l'ouïe .

Bien que la présente étude avait pour objet les besoins des handicapés se l'ouïe en particulier, on constate avec plaisir que les solutions aux problèmes de déplacement de ces derniers profiteront à l'ensemble des usagers des services se transport.

Il est intéressant de remarquer par ailleurs que la plus grande part des lacunes

constatées et des recommandations auxquels elles ont donné lieu se ramènent à une simple question de mise en service d'une technologie qui existe déjà. En effet, les principaux problèmes soulevés ne tiennent pas au manque d'équipement approprié, mais bien à leur absence flagrante dans les installations terminales de tous les moyens de transport.

La plupart des recommandations formulées dans le présent rapport ne demandent pas un investissement financier prohibitif, ni même important, et ne présentent pas non plus de grandes difficultés techniques. De façon générale, elles peuvent être mises en ouvre à la faveur des travaux périodique d'entretien ou de réfection et au moment de recruter du nouveau personnel. Tout changement apporté dans le sens indiqué ne pourra qu'améliorer les rapports entre les exploitants de services et d'installations de transport et les usagers.

Il ne faudrait pas en conclure toutefois que les travaux de recherche et de développement ne sont désormais plus nécessaires. Bien la technologie actuelle réponde à un bon nombre des besoins des handicapés de l'ouïe, il y a toujours lieu d'apporter des améliorations. On peut penser, par exemple, à un système d'affichage de messages variables composés sur clavier, à une interface améliorée pour les systèmes informatisés d'information et d'interprétation, au perfectionnement des télécopieurs et des appareils de télécommunication pour malentendants.

Dispositifs de communication

Toutes les installations terminales de transport devraient être mieux équipées en dispositifs de communication spécialement adaptés à l'usage des handicapés de l'ouïe. Par exemple, il devrait y avoir un nombre suffisant de téléphones publics, aussi bien ordinaires qu'à lecteur de carte d'abonné, qui soient à volume réglable, compatibles avec les appareils auditifs, compatibles avec les appareils ATME, etc., et ces téléphones devraient être situés dans des endroits faciles d'accès et signalés de façon appropriée.

L'information des usagers

Toutes les informations concernant les départs, les arrivées, etc., devraient être diffusées visuellement aussi bien qu oralement, par affichage sur panneaux à matrice de disques, affichage à diodes électroluminescentes, affichage à cristaux liquides ou autres. Au besoin, le système de téléappel devrait aussi être intégré au système s'affichage des informations. Les installations terminales les plus achalandées devraient comprendre un guichet d'information, de préférence équipé d'un système infrarouge et d'imprimantes.

Toutes les installations devraient être équipées d'un appareil ATME pou pouvoir fournir aux handicapés de l'ouïe le service de renseignements téléphoniques.

Mesures spéciales d'aide aux handicapés de l'ouïe

Le point le plus important ici est la formation du personnel de première ligne. Celle-ci devrait comprendre au moins une demi-journée consacrée aux aides techniques pour les handicapés se l'ouïe. De plus, le personnel devrait être formé aux méthodes de communication propres aux sourds et aux malentendants, et les postes de travail devraient être modifiés pour faciliter le contact visuel entre les agents et les usagers.

Lorsque cela est possible, le personnel devrait compter un interprète gestuel. À tout le moins, le personnel devrait avoir à porté de la main une carte les principaux signes du langage dactylographique.

Mesures en cas d'urgence

Tous les systèmes d'alarme, incendie et autres, devraient fonctionner en mode visuel aussi bien que sonore; par exemple, par signaux clignotants ou à éclats répartis à la grandeur de l'installation, y compris dans les endroits isolés.

Orientation de la recherche et du développement

Les résultats de la présente étude indiquent qu'il y aurait lieu de perfectionner les équipements électroniques de communication ne nécessitant pas la présence d'un opérateur. Il y aurait également lieu d'étendre la recherche aux difficultés qui se posent aux handicapés de l'ouïe à bord même des véhicules de transport. Enfin, il faudrait se pencher sur les besoins particuliers des usagers polyhandicapés.

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APPENDIX 1: INDIVIDUAL SITE VISITS

APPENDIX 2: SURVEY INSTRUMENTS

1. PROJECT OBJECTIVES AND METHODOLOGY

1.1 PURPOSE OF THIS STUDY

More than ever before, people recognize the importance of overcoming the obstacles encountered by disabled individuals in dealing in a dignified manner with our complex society. Not surprisingly, a great deal of research has been devoted to mobility-impaired individuals and the problems of long- and short-range travel. Also not surprisingly, the bulk of this research has dealt with problems experienced by people who are "visibly disabled" — those individuals with para- or quadriplegia or cerebral palsy, or partial or total blindness. A search of any data base, for example, will reveal that little effort has been dedicated to the problems of those experiencing less obvious disabilities, such as epilepsy or hearing impairment.

The Canadian Hearing Society, in consultation with Behavioural Team, has attempted to supplement available research information with a study of the difficulties encountered by the deaf and hard of hearing individual in the process of intercity travel.

The goals of this study were three-fold:

1. to identify obstacles to the successful use of transportation facilities by the deaf and hard of hearing traveller;

2. to identify assistive devices currently in use in transport facilities, as well as any problems with their use, and

3. to formulate recommendations for further research, development, and implementation relating to the needs of the deaf and hard of hearing public.

1.2 REVIEW OF RESEARCH ACTIVITIES

All research activities were undertaken by Behavioural Team, in consultation with the Canadian Hearing Society.

Activities undertaken include:

1. a review of the implications of impending technologies,

2. a review and analysis of transportation facilities across Canada, including a sampling of air, rail, bus, and ferry terminals, and

3. contact with the Canadian deaf and hard of hearing travelling public.

1.2.1 Review of impending technologies

As part of this investigation of the problems facing the deaf or hard of hearing traveller today, the implications of impending technologies such as on-line translation systems were reviewed. This included an extensive review of all currently available literature, both through an examination of library holdings and an exhaustive search of no less than three major computer information systems. For the most part, this review revealed little in the way of new information. Most available materials were published in the early days of accessibility research, and were thus devoted primarily to the development of international pictograms, or the potential application of the TDD to incoming information calls. The body of literature was dedicated to accessibility for the mobility impaired. (For a more detailed discussion of the literature review, please see below.)

In addition, members of the study team were involved in a personal examination of those centres known to be (either currently or in the recent past) active in the area of research concerning hearing impairment. Visits were made to the National Technical Institute for the Deaf (NTID) in Rochester, New York, and Gallaudet University in Washington, D.C. Unfortunately, very little research pertinent to this study is ongoing.

1.2.2 Review of transportation facilities

Careful examination was made of airports, train and bus stations, and ferry terminals across the country, sampled as defined below. Emphasis was on *access to* facilities as well as on the premises themselves. Careful consideration was given to the problems of both the well-wisher, greeter, and the traveller. An attempt was made to identify examples of new technology currently in use which inadvertently discriminate against the deaf and hard of hearing user, in addition to examining the effectiveness of facilities designed and installed with the deaf or hard of hearing user in mind.

Features of transportation facilities examined and evaluated include:

- *Signage* – in what ways are user guidance/orientation systems geared toward the deaf and hard of hearing population? Are instructions presented graphically? Are graphics in use consistent with guidelines of recognized systems such as International Standard or Federal Identity Programme?

- *Telidon/videotex* – are CRT monitors in use to present arrival/departure information? Are there adequate numbers in visibly prominent locations? How are visitors directed to these information systems? Do these systems respect the language level, intelligence, computer awareness, and experience of ordinary travelers?

- *Ticketing/reservation* – to what degree are users expected to communicate orally/aurally with ticket and reservation personnel? Are devices such as TDD or assistive listening systems available for the deaf and hard of hearing customer in the booking procedure?

• *Public announcements and their delivery* – are public address systems used to impart information concerning arrival and departures, emergency situations, or special boarding procedures? Are these announcements clearly understood throughout a facility? Is visual backup of announcements provided?

A total of twenty transportation facilities were visited over a period of approximately five months. These include a sampling of nine airports, five railway stations, four bus terminals, and two ferry terminals.

Each site visit consisted of three parts:

1. an informal stroll around the designated facility, followed by

2. a brief interview with facility management and/or staff, and

3. a guided tour and photography session.

All interviews were conducted following a structured format, so as to ensure that all pertinent issues were adequately covered. Topics of discussion included:

1. patterns of use of transit facility as perceived by management and staff;

2. use of communication aids specific to the deaf and hard of hearing traveller such as TDDs, etc. in the terminal or station;

3. general awareness and training of staff with regard to the needs of the deaf and hard of hearing traveller;

4. the degree of use of verbal information, with or without visual back-up;

5. the clarity and legibility of pictograms or other visual information devices not specific to the deaf and hard of hearing traveller;

6. the use of electronic information systems, etc. for the delivery of information on parking, arrivals and departures, etc.

7. terminal emergency procedures;

8. complaints/comments received from deaf and hard of hearing travellers;

and other issues as they arose.

As previously stated, the interview was followed by a guided tour. Whenever possible, the project team took advantage of opportunities to photograph examples of:

1. location and visibility of communication devices for deaf and hard of hearing travellers;

2. layout of work stations – placement of computer terminals, etc.;

3. clarity of pictograms vital to the travel experience of the deaf and hard of hearing traveller;

4. location and visibility of information devices not specific to the needs of the deaf or hard of hearing traveller.

While interviews were primarily with facility managers, an attempt was made to talk informally with operational people — ticket vendors, travel attendants, and other personnel in daily contact with the traveling public — at each of the various travel facilities visited.

1.2.3 Contact with the public

In addition to the examination of current technology for the use of deaf and hard of hearing people (as well as the general public) the project team maintained contact with members of the deaf and hard of hearing population. In order to ensure that project activities were as focussed as possible while adequately addressing all major issues, a number of special interest groups were represented on the project steering committee. These include the Canadian Hard of Hearing Association (CHHA), the Canadian Association for the Deaf (CAD), and the Canadian Hearing Society, as well as a number of deaf and hard of hearing consumers. We appreciate their input into all phases of the project.

The more intense concentration of public contact was in the form of a survey examining both the travel habits of deaf and hard of hearing Canadians, and their experiences –negative and positive– in transportation facilities across the country. A total of almost 1000 surveys were mailed out to the members of the Canadian Hard of Hearing Association and the Canadian Association for the Deaf. Of this number, a total of 196 surveys were returned in time for data analysis, for a return rate of 20%. For the purposes of this survey, this can be considered an adequate sample size. It is particularly noteworthy that the survey of members of the Canadian Association for the Deaf yielded a return rate of 10%. This is impressive in light of the limited language skills of many deaf people.

Data was analysed thoroughly, with results presented graphically wherever possible. The survey is discussed in depth below.

1.3 REVIEW OF RELEVANT LITERATURE

For the most part, the search for recent materials relevant to the topic of the deaf and hard of hearing traveller and his or her specific needs in the terminal or station revealed little. In general, those materials available were published primarily during the late 1970s and early 80s. They deal not so much with the needs of the traveller as with the developing technologies of the time. Discussion generally centres around the potential applications of newly emerging TDDs, the use of pictograms, and the use of visible information, although in only a superficial sense. Very little time and attention is dedicated to the careful analysis of specific problem areas and their respective solutions.

Perhaps one of the more relevant issues to be expressed in the vast majority of literature examined is the need for education of terminal/station and carrier personnel to the needs of the deaf or hard of hearing traveller. This was echoed continuously throughout the interview and survey work of the project.

The following is a brief list of those measures and technologies investigated by available literature:

a. TDDs (for reservation and information),

b. Visual back-up of travel information and use of printed brochures, etc.,

c. Effective wayfinding, including the use of international pictograms,

d. Assistive listening devices (infra-red, FM, loop, etc.),

e. Adjustable volume telephones, and

f. Trained staff and/or sign language interpreters.

It should be noted that evidence of all six measures was found in the facilities visited, although the extent of accessibility did in fact vary greatly with the size of the facility, as well as with patterns of use. In general, the maintenance of a sign language interpreter on staff at any one facility would not be a logical and feasible option, although it would be the best option for many deaf travellers. In smaller facilities, an interpreter might not be required often enough to justify the expense. The cost could probably be justified in larger facilities, but a system would have to be developed to ensure that the interpreter would be in the right place at the right time.

It is also noteworthy that, in addition to extensive searching of printed and computerized bibliographies, a message was placed on a well known computer bulletin board dedicated to issues relating to the disabled. Two responses were received. Interestingly, both recommended the investigation of Gallaudet University as a potential

source of information on developing technologies. A visit to Gallaudet by project researchers, however, proved to be fruitless, as no new research relevant to the project has been undertaken there in some time.

1.4 BUILDING CODES AND THEIR IMPACT

1.4.1 National Building Code

There is very little in the National Building Code concerning the special needs of deaf and hard of hearing people. Hearing impairment is only mentioned specifically in two sections of the building code.

1. Sentence 3.2.4.13(4): In a building or portion thereof intended for use primarily by persons with hearing impairments, visual signal appliances shall be installed in addition to audible signal appliances.

2. Sentence 3.2.4.14(2): Visual signal appliances required in Sentence 3.2.4.13(4) shall be installed in a building so that the signal from at least 1 appliance is visible throughout the floor area or portion thereof in which they are installed.

These two sections clearly do not apply in any way to transportation terminals or indeed to public buildings in general.

1.4.2 Provincial building codes

Many of the provinces follow the National Building Code with or without modification. British Columbia has developed its own Building Code. It is the only province which gives more attention to the needs of deaf and hard of hearing people than does the National Building Code.

The B.C. code requires the provision of flashing smoke and fire alarms in hotel and motel rooms. While these provisions do not in any way relate to transportation terminals, it is perhaps worth noting that the hospitality industry in British Columbia has reacted favourably to these regulations. This reaction would seem to indicate that similar provisions would be accepted in other buildings.

It is noteworthy that a concern frequently raised about the use of flashing lights is the danger thay may pose to undiagnosed epileptics. The Epilepsy Society has indicated that a flash rate less than five Hertz poses no danger.

2. THE CURRENT STATE OF ACCESSIBILITY: AN EXAMINATION OF INDIVIDUAL TRANSPORTATION FACILITIES

2.1 FACILITY SELECTION AND RANKING

A total of twenty transportation facilities were visited over a period of approximately five months. These include a sampling of airports, railway stations, bus terminals, and ferry terminals. A breakdown of this number is as follows:

Airport Terminals	*9*
Bus Stations	*4*
Ferry Terminals	*2*
Railway Stations	*5*

Every effort was made to ensure that facility visits covered the breadth of the country, and included representation of major and minor, and urban and rural facilities.

Each facility was then assessed according to a variety of features, including:

1. Communication devices – including the availability of adjustable volume telephones, TDD equipment, and visual back-up of paging,

2. Traveller information – including the announcement of departures and arrivals, pictograms and signage, and the existence of electronic (CRT) monitors for the delivery of flight information,

3. Special procedures for deaf and hard of hearing users – including staff training and special boarding and pre-boarding policies, and

4. Emergency procedures – including visual back-up of warning alarms, as well as the presence of strobes or flashing warning lights in main areas and washrooms.

Information regarding these areas was collected by researchers through three major activities:

1. an informal stroll around the designated facility, followed by

2. a brief interview with facility management and/or staff as previously discussed, and

The International Symbol of Access / Hearing Impairment indicates facilities and services accessible to deaf and hard of hearing people.

3. a guided tour and photography session.

To simplify the presentation of collected materials, we have assessed individual facilities and features as inadequate, marginal, acceptable, good, or excellent.

Please note that this is at best a subjective ranking. The issue of accessibility and terminals of varying sizes, ages and characters cannot be rigidly codified. Features which would be considered totally unacceptable in a multi-gate, multi-level airport might prove more than adequate for the needs of the average rural bus station. Every effort was made to keep the relationship between size, function, and traffic flow patterns in perspective.

The rating of facilities and features can be found in the following *Transport Terminal Assessment Matrix.*

In some cases, technical data were not readily available from facility staff. Whenever possible, these gaps were filled by contacting relevant agencies or industries in the area in question. The existence of flux-coil telephones, for example, came under some scrutiny. We were able to ascertain that all pay telephones, whether adjustable volume or standard configuration, do indeed contain flux coils.

2.2 MANAGEMENT AND THE DEAF AND HARD OF HEARING USER

One of the greatest factors affecting the implementation of accessibility-related changes to meet the needs those who are deaf or hard of hearing is the lack of uniformity among ownership, operation, and corporate policy of the various terminals. It would be a far simpler exercise if Transport Canada were the sole authority in areas such as the availability of accessible communication devices, the design and installation of effective wayfinding, and the proper training of public contact staff. Unfortunately, the current transportation scene in Canada represents a rather complex collage.

Transport Canada does in fact have some say in the legislation and regulation of transportation. The interpretation and implementation of this regulation is however, in the hands of the individual carrier. It is true that Transport Canada does have a direct presence in some facilities. This is, however, limited for the most part to airports.As well, this presence has been downgraded in the last few years. For the most part, issues of accessibility as they pertain to this study are left largely in the hands of individual carriers.

An interesting example of this is the current situation at Toronto's Pearson Airport. Here, Transport Canada's presence is felt most strongly in Terminal 1. All "customer service" such as paging, flight announcements, and the staffing of information booths are the responsibility of Transport Canada staff who are trained (to some degree) in the needs of the disabled, including the deaf and hard of hearing user. In addition, overhead video monitors and their use and maintenance are the responsibility of Transport Canada. Terminal 2, however, is operated by Air Canada.

THE PREFERRED METHOD OF COMMUNICATION FOR MANY DEAF PEOPLE IS AMERICAN SIGN LANGUAGE. PRESENTING INFORMATION IN A VISUAL FORM CAN ALSO IMPROVE COMMUNICATION.

They are in turn responsible for its paging and passenger information, as well as the ownership, operation, and maintenance of video monitors. With this, they are responsible for issues of accessibility to deaf and hard of hearing travellers. It should be noted that information booths in Terminal 2 are operated by trained Transport Canada staff. This rather complex situation will likely become more so with the impending opening of Terminal 3, the operation of which will be in the hands of private enterprise.

A similarly complex situation exists in terminals operated by VIA Rail. For the most part, all employees receive the same training. As well, accessibility policy is the same across the country. A problem does arise in the issue of emergency evacuation procedures. These are generally the responsibility of the owner of the facility as opposed to the operator. VIA terminals are the property of no fewer than four independent agencies – Canadian National, Canadian Pacific, Toronto Terminal Railway, and VIA. While emergency procedures are essentially the same across the board, there are slight differences which could impact on building occupants or users who are deaf or hard of hearing. Some effort has been made to rectify this situation. VIA is currently acquiring ownership rights to most of its facilities, and is standardizing policies and procedures.

As for ferries and bus operation, these services do operate under the same set of Transport Canada safety and quality regulations and guidelines. Again, the development and enforcement of accessibility-related features and services is left to the many carriers who serve the Canadian travelling public. This can be quite complex. In the case of bus terminals, for example, as many as fifteen carriers operate out of one facility. The public is then subject to as many varying policies and procedures.

2.3 SUMMARY

2.3.1 Airports

Of all Canadian transportation facilities, airports are among the more diverse in terms of traffic flow, usage patterns, number of associated carriers, and above all, architectural complexity. Any objective assessment would have to cover a variety of airports, in order to synthesize a true perspective on the current state of airport accessibility to the deaf or hard of hearing traveller or well-wisher. It would be foolhardy to assume that a small regional airport would currently offer the same features (in terms of both technology and service) as a major international airport, or that it would in fact need these same features to maintain an effective and accessible service for all travellers.

Bearing this in mind, the nine sites visited by project researchers (with a few exceptions) reflected the same major tendencies. As can be seen in the *Transport Terminal Accessibility Matrix,* ratings are fairly uniform across the board.

2.3.1.1 Communication devices: In terms of available communication devices specific to the deaf and hard of hearing user, airports are among the more highly rated sites visited by project researchers. This is notable in the area of publicly accessible

THE ACCESS SYMBOL AT A TRANSPORT CANADA BOOTH INDICATES A SPECIAL SERVICE FOR DEAF OR HARD OF HEARING PEOPLE – MOST FREQUENTLY A TDD. IT MIGHT ALSO INDICATE AN ASSISTIVE LISTENING DEVICE OR STAFF WITH SPECIAL TRAINING.

TDDs. Of our sample of nine airports, a total of five have TDD equipment in the airport facility. This equipment is for the use of deaf or hard of hearing individuals seeking flight information and/or personal use by the general public. In the latter case, TDD equipment is generally stored in publicly accessible information booths staffed by trained personnel. (See *Special procedures for deaf and hard of hearing users.*) One major problem is evident with the use of information booths, however. For the most part, equipment is stored in secure areas behind the main counter area, and thus out of the line of sight of much of the travelling public. This could be rectified by the display of large standard pictograms and/or verbal signage. Currently, most information booths equipped with TDD equipment are marked with the appropriate pictogram, although this does tend to be too small and inconspicuous. The display of more prominent pictograms is, however, restrained by a lack of clearly visible display space in the area of the information booth.

All pay telephones currently in use in airports do in fact contain a flux coil, and are thus accessible to the hearing aid user. Phones equipped with an adjustable volume feature, however, do continue to present a problem. Few airports have adequate numbers of these specially equipped phones to meet the demands of deaf and hard of hearing patrons – or of patrons with normal hearing who find the feature beneficial amid the noise of a modern transportation facility. The problem of insufficient numbers is compounded by the tendency to scatter these phones throughout the terminal area, instead of situating them in one or two central, easily located banks, each equipped with a minimum of one unit. Further complicating this situation is the lack of signage indicating the location of these phones unless they are mounted in wheelchair accessible consoles. Banks containing accessible phones are then indicated by the standard wheelchair pictogram. For the most part, deaf and hard of hearing travellers must scan a phone bank for the (usually) prominent pictogram found on accessible equipment, with no guarantee of its presence. (Our research revealed that only one of nine terminals has directional signage indicating the presence of adjustable volume telephones.)

Inclusion in a wheelchair console is in itself problematic. While this does provide visual support of the location of specially equipped telephones, the seating arrangement is an acceptable feature for a relatively small percentage of the user population. Deaf and hard of hearing travellers are not automatically wheelchair users; many find this seating arrangement to be uncomfortable and inconvenient. As well, many disagree with the concept of a generic "disabled phone." There are, however, those travellers for whom this combination of features is a necessity for independent travel. To ignore their wishes would be to discount an important segment of the Canadian travelling public.

It should also be noted that no airports visited are equipped with phones containing both a credit card (or *Calling Card*) reader, and a volume adjustment feature. Consultation with several major telephone companies in Canada has indicated that equipment with this combination of features could be made available, pending a show of interest on the part of the payphone market.

2.3.1.2 Traveller Information: For the most part, public address announcements remain the sole source of arrival and departure information, as well as paging for travellers and airport visitors. The quality of these announcements as observed by project researchers was acceptable on the whole, although there were a number of facilities where background noise rendered announcements incomprehensible. In addition, the quality of public address systems currently in use is highly variable, as is the level of knowledge regarding effective use. While this is mostly at an acceptable level, there are instances at which announcements are delivered with little or no attention to proper tone, enunciation, or speed.

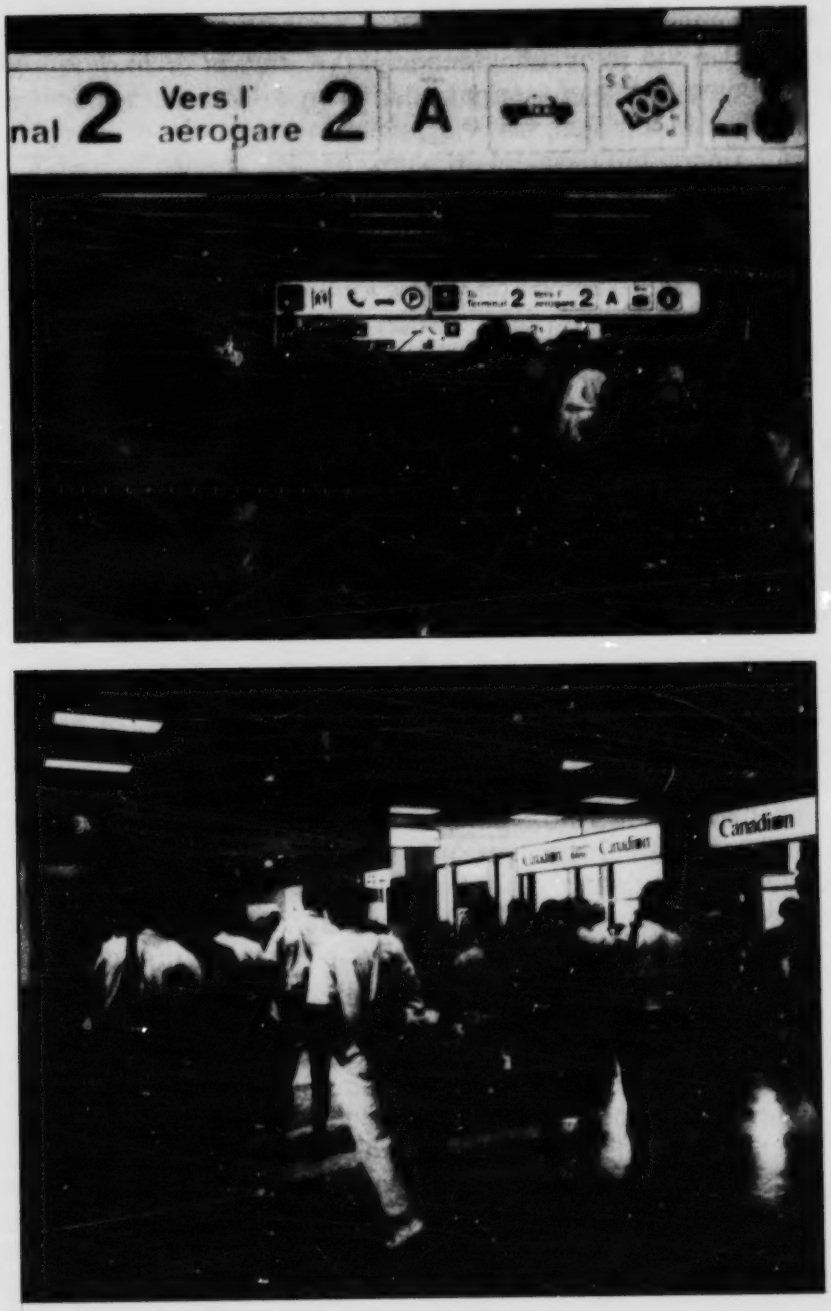
Quality of public address equipment notwithstanding, airports are among the better equipped (theoretically) to provide adequate visual back-up to verbal announcements. This is particularly true when one considers the proliferation of video monitors and other modern technology in the rapidly advancing world of air travel.

While those airports visited by the research team are generally equipped with video monitors, these are not always used to the best advantage. As an example, little if any thought has been given to the logistics of a paging or message band programmed to run immediately below arrival and departure information. (We do acknowledge that, in many cases, monitors currently in use are far too small for the general information load they must carry. The concept of monitor paging does, however, warrant further research and possible development.) As well, the quality of monitors is not uniform; among the facilities we have seen, monitor displays have varied from multi-coloured with simple coding, through bi colour blue and gray, and onto monochrome black and white. Further complicating the situation is the lack of placement standards, as well as the nature of information carried. Whenever possible, monitors should be situated at eye level for 85% of the population, and should be located in key sections of the airport. In addition, information regarding all airlines operating out of a facility should be displayed. Those monitors which are incapable of multi-coloured display should be replaced to ensure regulation of information delivery in all Canadian airports.

Still another area of support for verbally delivered information is supplied by the uniformed gate attendants of the respective carriers operating out of an airport facility. Again, we acknowledge that these attendants are outside the jurisdiction of Transport Canada. Observation has shown, however, that the visual support provided by gate attendants is not adequate to inform the deaf or hard of hearing traveller of impending boarding, gate change, or flight cancellation. In lieu of this, travel information of this type should be supported by coloured highlighting on information monitors, as well as visual back-up at check-in and meeting places.

Perhaps the most important medium of information delivery in any airport is the basic wayfinding tool provided by directional and informative signage. While the traveller passing through a two gate, one level terminal would not be as aware of its presence as would the traveller attempting to navigate a multi-gate, multi-level, and multi-building facility, it is still the prime locater of many services basic to the travel experience.

In general, we found signage to be the weak link of the airport/passenger



CLEAR, WELL-PLACED SIGNS AND MONITORS CAN SIMPLIFY WAYFINDING IN EVEN THE BUSIEST TERMINALS.

communication chain. The current trend in air terminals is toward back-lit bands of signage with a black on white colour scheme. This in itself presents a number of problems. First, signage of this type is highly subject to glare, whether from sunlight or artificial lighting within the terminal. Secondly, the vista of uniform bands of light can prove highly confusing to the passenger attempting to find his or her way through an unfamiliar venue.

(While European airports were not part of this study per se, one of the project team was in Heathrow Airport, London, England, during the course of the study. This is a highly complex facility with hundreds of signs. The signage for airport facilities is, however, readily identified by its back-lit black on yellow form. These signs are well placed, easy to identify, and are not subject to interference from reflected light. For the most part, wayfinding is exceptionally easy despite the size and complexity of the terminal.)

A second trend in airport signage is toward the use of pictograms. There are indeed a number of pictograms which are now the acceptable standard. These include the "wheelchair" pictogram for wheelchair accessibility, the "ear" for deaf and hard of hearing accessibility, and the "male and female" pictograms which are universally acknowledged to indicate washrooms. We found, however, that a great deal of airport signage is still in a state of flux, with a mixture of arrows, pictograms, and text to indicate key services and locations throughout the terminal. Even within the area of pictograms itself, there is considerable variation. In one terminal, for example, three sets of standards and guidelines are in use: Transport Canada, Federal Identity Program, and International Standard. The result is, unfortunately, an incomprehensible example of "information overload."

2.3.1.3 Special procedures for deaf and hard of hearing users: Perhaps the most important aspect of "special procedures" is the quantity and quality of education relating to the needs of the deaf and hard of hearing public received by front line staff. It is important to note that gate attendants, ticket sellers, and information providers are key information resources for any traveller, especially one suffering from a sensory deprivation.

Airport staff do indeed receive some "sensitivity" training, although, according to many of the personnel with whom we spoke, this centres primarily on the needs of the motor impaired. In general, only those individuals hired for the operation of information booths (under the jurisdiction of Transport Canada) receive training specific to the needs of the deaf and hard of hearing user. This is in the form of a half day training session on the proper use of the TDD, and includes a showing of the film *One to One*, produced by the Canadian Hearing Society. This is, however, a one-time exposure to the world of hearing impairment. Ideally, training such as this should be repeated regularly throughout the term of employment. Workers hired prior to the introduction of such training should also be required to undergo some basic training, as should front-line staff from all carriers operating out of Transport Canada facilities.

2.3.1.4 Emergency procedures: Successful emergency procedures depend largely on three elements: auditory signalling such as alarms or announcements, visual

signalling such as flashing lights or strobes, and human policing, often performed by police or security staff.

Because of the size and complexity of most major airports in Canada, the three elements cannot be considered in isolation. The combined use of human policing and auditory alarm would in most cases, prove satisfactory, although the best possible system would include emergency flashers. These would be installed throughout the facility, and most importantly, in washroom areas. As well, an easily understood explanation of such a light system should be clearly posted in key areas of the terminal, as well as in public relations literature.

As can be seen in the *Transport Terminal Assessment Matrix*, all terminals visited include the use of auditory signals and human policing in their overall emergency plan. Only one of these terminals is equipped with visual alarm equipment, although an additional four have included its installation in short-term upgrading and renovation schemes.

2.3.2 Bus stations

Despite the diversity of location and operating carrier of the bus facilities investigated by the project team, the majority reflect the same tendency toward single level, rectangular layout. Just as this makes for ease of accessibility for both the deaf and hard of hearing and the motor disabled user, it also allows for simpler comparison and ranking. Three of the four bus stations visited, whether located in smaller towns or major urban centres, were virtually identical in layout and in operating equipment and policy. The fourth station strayed slightly from the pattern. While it too is essentially a "one room classic station," its rather imposing size adds to its complexity. With that comes a need for better wayfinding and orientation systems, as well as better delivery of traveller specific information.

2.3.2.1 Communication devices: The quality of communication devices provided varies greatly among the four stations visited. Only one facility is TDD equipped. This is primarily for use in booking tickets and acquiring information, although it is accessible to the public if required.

All stations in the sample are equipped with adjustable volume phones in major telephone banks, although in one case this number is, in our opinion, inadequate for the size and use patterns in the terminal. Phones are clearly marked with the international pictogram for hearing accessibility and with an instructional diagram for use of the volume adjustment feature. As in airports, there is no evidence of directional or identification signage indicating the location of these phones. Considering the size and simple layout of three of the four sites, however, this does not create significant problems. For the most part, there are no more than one or two telephone banks in any station. Generally, these are readily visible from all points in the facility.

There is a tendency for adjustable volume telephones to be installed in wheelchair

THE RECTANGULAR SHAPE AND THE GOOD SIGNAGE OF THIS BUS STATION MAKE FOR EASY WAYFINDING.

accessible consoles, causing some discomfort and inconvenience for non-wheelchair users. (This is discussed more fully in the summary of airport accessibility.)

2.3.2.2 Traveller Information: Again, the size and layout of many bus stations negates the importance of complicated information delivery systems. The standard mode of delivery for arrival and departure information is the public address system, with visual back-up provided by clearly posted schedule boards. This is generally acceptable, although there may be some problem in the quality of announcements. In one of the larger stations in our sample, for example, the public address system could not be heard uniformly throughout the building. In addition, messages were delivered at too rapid a pace to be comprehensible to those with reduced hearing ability. (Interestingly, this station does provide a back-up system in the form of direct-line information telephones. These are not, however, equipped with adjustable volume.)

It is also noteworthy that signage is not a major issue in a majority of bus terminals. Again, most are simply laid out, with services and facilities clearly visible around the perimeter of a central waiting area. For the most part, stations visited function efficiently with signage that would be considered in another setting to be marginal or acceptable. It should also be noted that one of the four stations was equipped with a flashing light to indicate boarding procedures. This small facility was recently remodelled, and installed wayfinding and orientation elements in consultation with a variety of special interest groups, including the local association for the deaf and hard of hearing.

2.3.2.3 Special procedures for deaf and hard of hearing users: Both training of staff and the approach to passengers with special needs varies greatly among the carriers operating out of an individual station. It is therefore difficult to pinpoint any specific trends. All carriers consulted do use pre-boarding when required, although this does depend largely on the passenger's travel experience and/or willingness to identify him- or herself. Generally, those passengers identified at check-in will be assisted through the boarding process. As well, destination staff will be informed of that passenger's particular requirements.

Again referring to the *Transport Terminal Assessment Matrix,* it should be noted that two of the four facilities visited were rated as "good" in terms of employee training, sensitivity, etc. Unfortunately, based on our experience with the four transport modes investigated in this study, these would have to be regarded as exceptions to the norm. In both cases, staff knowledge and attitude was based not so much on regular training and reinforcement as on exposure to the sensory disabled with resulting knowledge of related needs. In the case of one facility (B1), staff have been involved in the mass transportation of deaf and hard of hearing children for several years. In another case (B3), staff are familiar with a number of deaf and hard of hearing passengers who make regular use of the commuter bus service which serves as the station's main tenant, and have learned to recognize and work with the limitations of hearing impairment. (Coincidentally, the duty manager at the time of our visit is the son of deaf parents.)

2.3.2.4 Emergency procedures: As with airport facilities, the combination of human policing and audible warnings should prove acceptable for the evacuation of

station facilities. This is especially true when one considers that only one of these stations is of any considerable size. All would, however, benefit from the inclusion of visible alarm systems such as flashing lights or strobes, especially in bathrooms and other sheltered areas.

2.3.3 Ferry terminals

It was decided that, as ferry travel is not one of the major travel modes identified either by the project steering committee or survey respondents, site visits would be limited to one major (F1) and one minor (F2) facility.

Interestingly, the two facilities chosen have proven to be polar opposites in terms of accessibility features. While both are small facilities requiring little in the way of complex wayfinding and information materials, F1 has proven to be the far superior. In fact, F1 might be seen as the best equipped of all sites visited during the research period.

Because of the vast differences in accessibility features, it is impossible to summarize the strengths and weaknesses of ferry terminals as a whole, based solely on our sample. Instead, the best approach is to examine the differences between the two facilities.

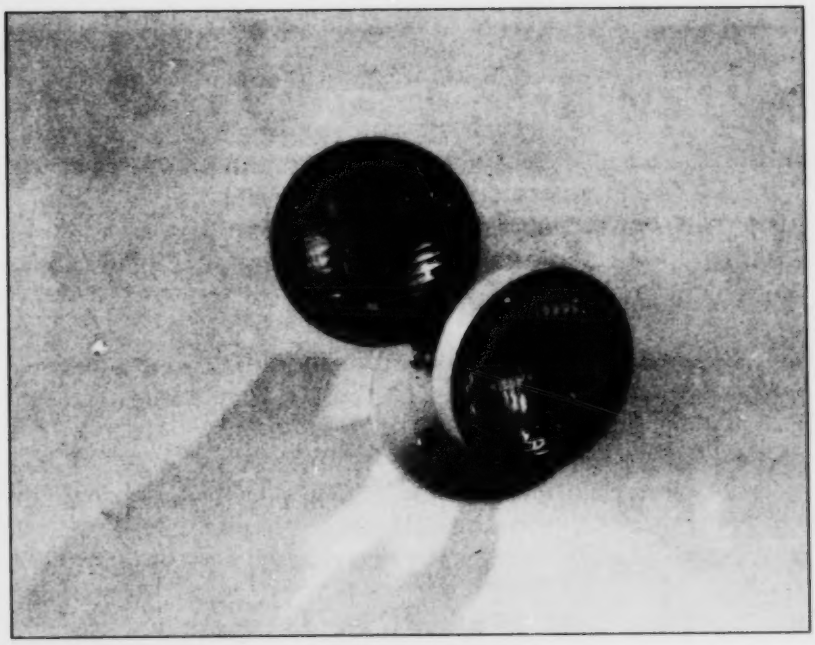
2.3.3.1 Communication devices: In terms of available communication devices, the two terminals examined are on opposite ends of the spectrum. F1 is amply equipped with adjustable volume phones which are readily located and identified. In addition, it has recently added a TDD, which is clearly visible in the main waiting area. F2 has no adjustable telephones and no TDD.

2.3.3.2 Traveller information: As with communication devices, F1 excels, with simple, well laid out signage. As well, the facility is equipped with an amber light in both washrooms and main waiting area. The flashing of this light indicates boarding. (An explanation of this system is clearly posted in key areas.) F2, however, lacks both standardization of signage media and visual back-up of announcements.

2.3.3.3 Special procedures for deaf and hard of hearing users: Neither facility has a procedural policy for dealing with patrons with special needs. In both cases, however, staff are aware of the need for alternative communication systems, such as a pad and pencil. In both cases, services would benefit greatly from regular sensitivity and awareness training and refresher seminars for all front-line staff members.

2.3.3.4 Emergency procedures: Again, the two facilities are at opposite ends of the spectrum. F1, in addition to the public address system, signals emergency situations through the use of a flashing red light (situated next to the amber lights which signify boarding). Management at F2 indicated that, while no formal emergency plan has been legislated for the facility, all Transport Canada safety guidelines are followed.

It should be noted that the warning light system at F1 is the only one of its kind observed during our site visits, although several airports have indicated that similar warning



FLASHING LIGHTS SHOULD BE PART OF EVERY FIRE ALARM SYSTEM.

THE USE OF FLASHING RED LIGHTS FOR OTHER PURPOSES SHOULD BE ELIMINATED. (THIS LIGHT INDICATES THE PRESENCE OF PORTERS.)

systems are in the planning stages.

2.3.4 Railway stations

Railway stations in Canada provide an interesting area for study, as all are operated by one major carrier, and are therefore subject to the policies of that carrier. VIA Rail has been active in the move toward accessibility in Canadian transportation terminals, and has modified many of its stations to meet with increasingly high standards of accessibility.

It is noteworthy that these standards of accessibility do not seem to be uniform in VIA stations throughout the country. The reason for this would seem to be related to the differences between individual VIA stations and their complexity and level of use.

In assessing the accessibility of train stations, it is important to keep a proper perspective on the relative importance of individual elements to an individual station. R5, for example, is a small rural station. It is simply laid out, with all necessary services clearly visible. It lacks signage, although in this case, it is not of great importance. For the most part, R5 would be considered accessible. R1, on the other hand, is a main facility in a major Canadian city. Its signage and information systems are considerably better than those found in R5, although based on the size and traffic flow pattern of the station, they are only marginally more successful in providing the necessary support for passengers with special needs.

2.3.4.1 Communication devices: Communication devices found in railway stations are primarily in the marginal to acceptable range. For the most part, VIA stations are not adequately equipped with devices specific to the needs of deaf and hard of hearing users. TDDs, for example, are installed in only three of the five VIA stations visited. Of these five, only one station indicated that there was public access to the TDD. According to VIA's brochure, these devices would seem to be installed primarily for the purpose of ticket reservations.

As with many transport facilities, the number and location of adjustable volume telephones continues to be a problem. Overall, the availability of accessible phones in the stations visited could be rated as acceptable to good, although in almost all cases, the number could be increased. All telephones currently available are clearly marked with a pictogram, although there is no directional signage to indicate those banks containing accessible phones. It is true that the majority of stations visited are (relatively)small in size, and can therefore function without signage of this type. All phone banks are clearly visible. In the interest of standardizing the delivery of information regarding accessibility features, however, it should be included in any directional signage indicating the presence of telephones.

2.3.4.2 Traveller information: The use of the public address system for the delivery of traveller information is common to all stations. Generally, we found this to be effective, especially when coupled with the fact that stations are small and simple, with

INTERNATIONAL SYMBOL FOR "INFORMATION" LEADS THE TRAVELLER TO ...

AN INFORMATION BOARD WITH GOOD, WELL-PRESENTED INFORMATION.

most movement visible from all points in the station proper. In larger stations, however, there is some difficulty with background noise caused largely by incoming and outgoing traffic, as well as by large crowds of travellers and well-wishers. This would probably be the exception as opposed to the norm: three of the five facilities visited were rarely crowded, and served only a few trains (at most) at any one time.

Visual back-up in the form of schedule boards is available in virtually all VIA stations. Only one of the five visited was without this mode of information delivery, although based on the size of the station and the traffic flow, this is largely a non-issue. In the case of the two larger stations, additional back-up is provided by the use of electronic schedule monitors mounted in key locations throughout the station. These are generally easy to find and to read, although, at one of the stations visited, the display was (temporarily) out of focus. Two of the five stations also featured a special "information light" situated near the central information boards. This flashing green (the internationally recognized colour for information) globe is mounted atop a standard, and is readily seen from all points of the station. Unfortunately, there is no indication as to the *meaning* of this light. In fact, researchers were given two differing explanations of its purpose. At one station, personnel stated that the light indicated the boarding of trains, and at another, that it indicated the presence of schedule boards. (According to VIA in Toronto, this light does in fact indicate the presence of information facilities.)

For the most part, station signage is clear, understandable, and visible from all points in the station. There is a tendency to combine text signs with pictograms, although this is not a problem. In only one station was the signage found to be less than acceptable. This was primarily because of the mixture of signage media, colours and styles present.

2.3.4.3 Special procedures for deaf and hard of hearing users: VIA staff do receive a half day training session in the needs of the disabled passenger. This includes information specific to the deaf and hard of hearing public. Training is delivered only to new staff, and is not repeated intermittently throughout the period of employment. (Interestingly, of the staff interviewed, none indicated that they had had this training, or that they knew of its existence.) In addition, service managers employed in the area known as the "Quebec-Windsor Corridor" are supplied with pocket-sized sign language guides, which indicate signage for basic communications, including "How may I help you?" "Thank you," and "Follow me," and key words such as train, careful, eating, sleeping, bathroom, suitcase, and ticket. There is no indication that this card has been used in other areas served by VIA.

The company does have a policy pertaining to the handling of passengers with special needs. As with most carriers, this depends entirely on the identification of the passenger to the ticketing or boarding agent.

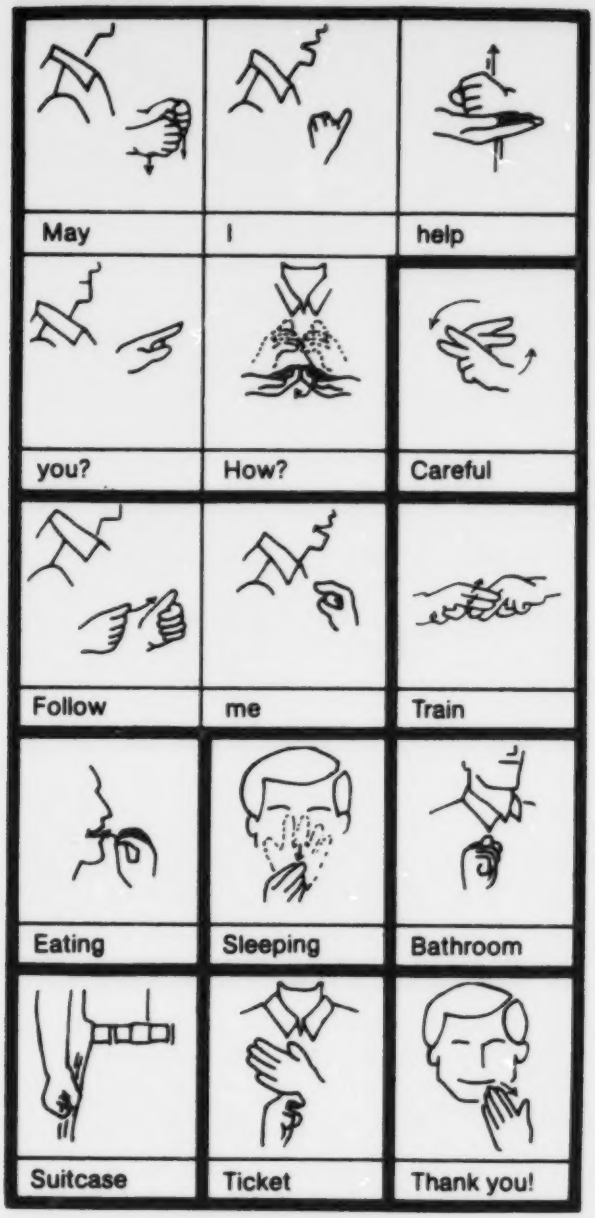
2.3.4.4 Emergency procedures: As with all transport facilities investigated, emergency clearance is achieved through the use of auditory alarms backed by human policing. One facility manager indicated that only human policing would be employed, so as to avoid a panic situation. Both methods could be successful and efficient, although this would depend largely on the size of the facility and on the systematic

policing of levels by transport facility staff.

No VIA stations are equipped with visual alarm systems of any sort.

For an in-depth examination of individual sites visited during the study period, please see Appendix 1.

SIGN LANGUAGE



SIGN LANGUAGE GUIDES ASSIST VIA EMPLOYEES TO PROVIDE SERVICE FOR DEAF TRAVELLERS.

3. USER PERCEPTIONS OF ACCESSIBILITY: A SURVEY OF DEAF AND HARD OF HEARING CANADIANS

3.1 INTRODUCTION

The best source of information about services for travellers are the travellers themselves. The survey of deaf and hard of hearing travellers described in this chapter deals with experiences in air, train, bus, and ferry travel. It enables the project to view activities at many more sites than would be possible by direct visit of the study team and provides realistic assessments by the individuals concerned.

In October and November of 1988, approximately 750 surveys were mailed to hard of hearing individuals from the mailing list of the Canadian Hard of Hearing Association. At the time this analysis was started, 176 had been returned. Subsequently a handful more were received. These could not, however, be included in the formal analysis. In addition, 200 surveys were mailed to deaf individuals from the mailing list of the Canadian Association for the Deaf. Of this group, twenty were returned. (It should be noted that those surveys received after the data analysis deadline were in fact scanned for relevant data. All responses were in support of conclusions drawn from the sample analysed in full.)

The rates-of-return of a survey are often of interest. The rates found in the present study may be better understood with reference to:

1. commercial market research mailback surveys which have lower rates of return,
2. motivated-respondent surveys which are typically slightly higher,
3. Behavioural Team's survey of cognitively-limited respondents and their care-givers which had a similar rate,
4. analogous projects by the Canadian Hearing Society and allied organizations which fall in the same range, and
5. the long-recognized limitations or discomfort which many respondents feel in trying to convey their reactions through written-language media.

Thus the rates found here are within an acceptable category of achievement.

1. Rate of return *per se* does not influence the accuracy of a survey. Problems arise only when those who return the survey are different from those who do not *and* when any differences are manifest in aspects relevant to the answers. Thus a survey conducted in July might miss those vacationing at that time of year. Results should, however, on most topics, be no different

from a survey conducted in August.

In the present instance, there is reason to feel that no such difference exists. The demographics appear to be quite representative and the body of answers seem to relate well to information collected by other means.

Few differences were noted between the two groups and these were considered insignificant differences. Thus results for the hard of hearing are presented with comments from deaf respondents added as needed. For a sample of 176, results will be within 7.4 percentage points for 95% of analyses. For present purposes, this can be considered a sufficient degree of accuracy.

3.2 CONCLUSIONS

Based on the analysis of survey data, a number of conclusions can be drawn with regard to the accessibility of transport facilities to the deaf and hard of hearing user.

1. The sample of respondents appear to have certain difficulties in all modes and the modes rank similarly in the eyes of these customers.

2. Travel personnel appear to be well-meaning and caring. However, all modes seem deficient in training staff because even the most basic element of communication with deaf and hard of hearing customers — facing them while conversing — is noted as lacking by a third of the sample.

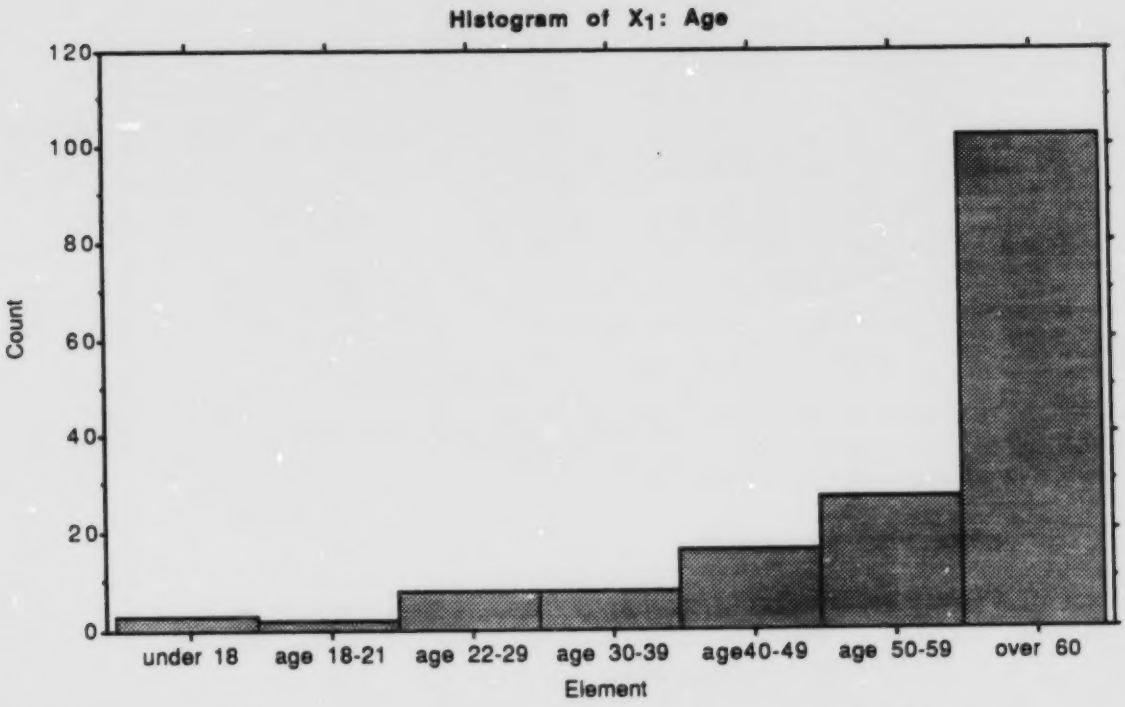
3. The largest block of travellers place their ticket reservations through travel agents. This may reflect obstacles to using terminal wickets and central reservation systems.

4. Except for ferry travel, about half the sample travel to terminals by public means. This group is divided approximately evenly into those using taxis and limousines, and those using buses. While satisfaction with this area of travel was not examined, it is apparent that such services need to be accessible and served by trained personnel.

5. Both deaf and hard of hearing individuals express some degree of difficulty in locating technical aids such as TDDs, adjustable volume telephones, etc. More attention should be paid to the proper positioning of these devices, as well as to the installation of proper directional and identification signage.

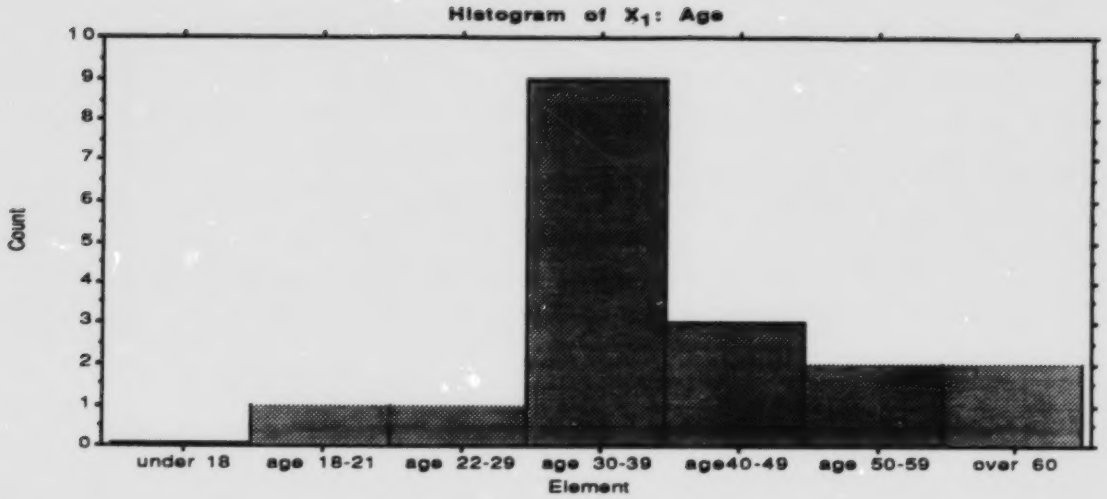
3.3 DEMOGRAPHICS

The age distribution of hard of hearing respondents was as follows:



The hard of hearing sample is strongly composed of seniors.

The twenty deaf respondents were distributed between 18 and 60 and up. Of these, two thirds were between the ages of 30 and 50, as is shown in the following chart.



65% of the hard of hearing group had their loss after age 22. As for deaf respondents, all were impaired before age 12 and 72% had their loss at birth or before learning to speak (age 4).

Respondents were asked what communication facilitators they used. The table below indicates their responses.

COMMUN. FACILITATORS	%HOH	%DEAF
Sign Language	9%	94%
Speech Reading	38%	50%
Hearing Aids	73%	17%
Aids & Reading	52%	17%
Microphones	14%	
Hearing Ear Dog	4%	
Hearing Person	40%	11%
Interpreter	5%	50%

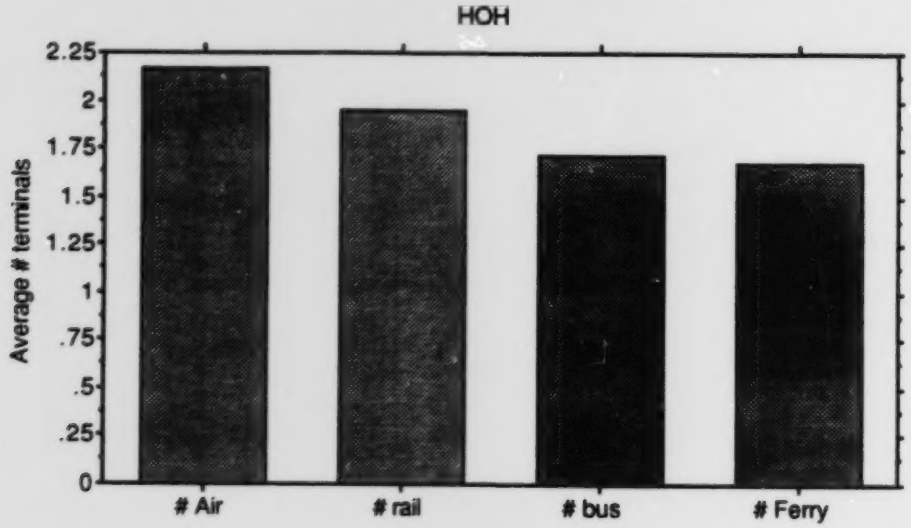
Among the hard of hearing respondents, 47% described themselves as "moderately" or "mildly" hard of hearing and the remainder as more severely hard of hearing or deaf.

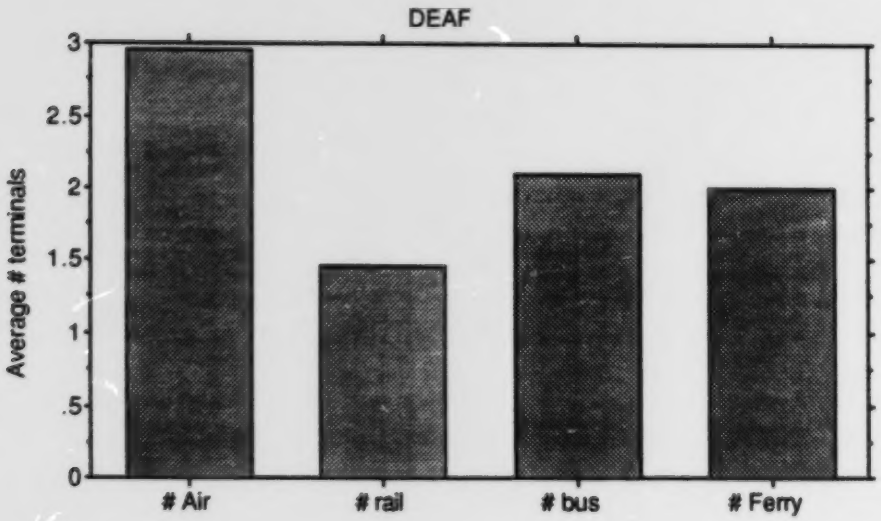
3.4 DATA APPLICABLE TO ALL MODES OF TRAVEL

Respondents tend to be aware of terminal features because of being travellers (more than 80% of the sample). Approximately 10%, however, are acquainted with the terminals reported in this chapter only as wellwishers (greeting or saying farewell). For ferries, no one was exclusively a wellwisher.

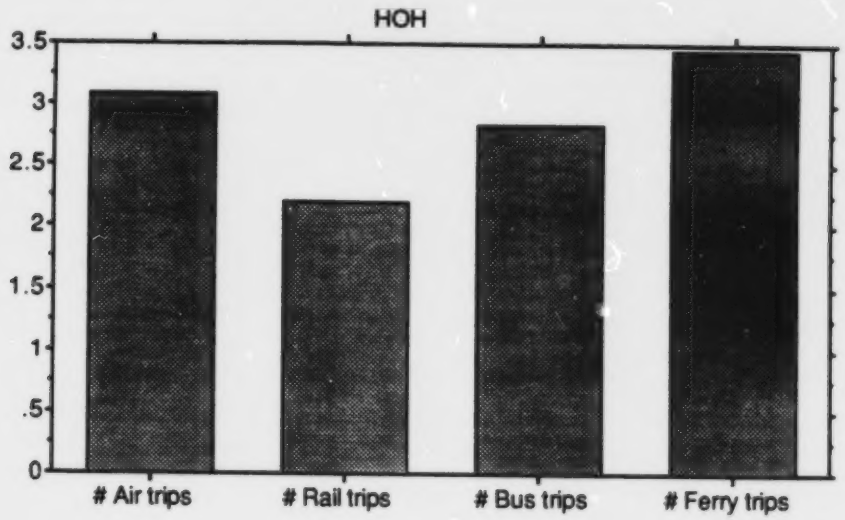
Respondents were asked how many different terminals they had seen in the past three

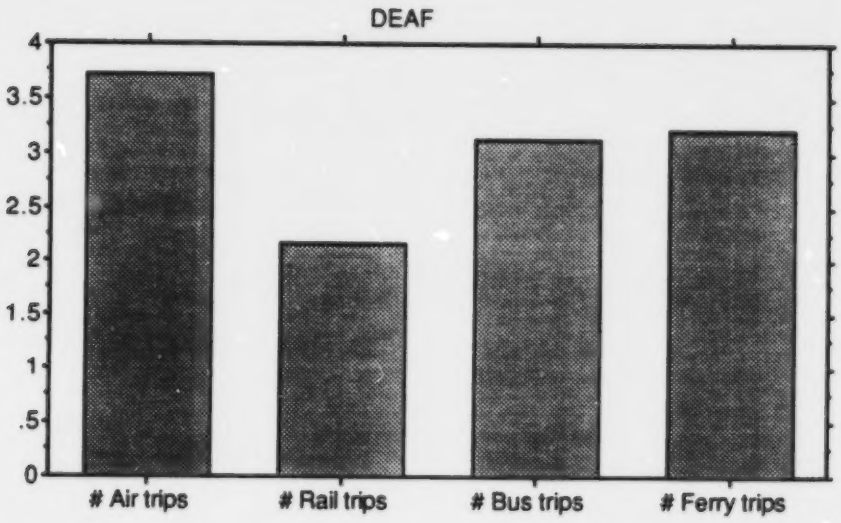
years. The following charts show the averages by mode.





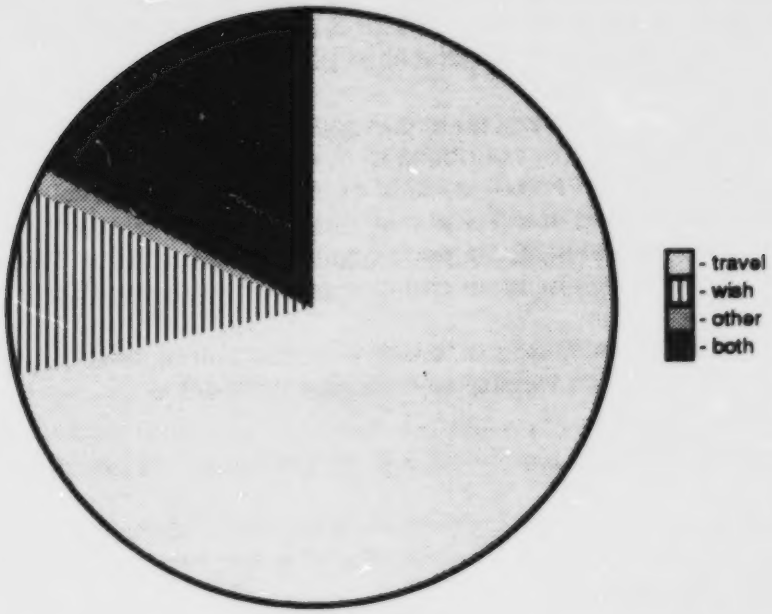
In the past three years, how many trips had respondents made?





Not all visitors to terminals are there for the purpose of travelling. The chart below is typical of all the modes. It depicts the reasons hard of hearing persons give for being present in train stations.

Pie Chart of X_1: Rail-Visit



How do respondents book their tickets?

METHOD OF BOOKING TICKETS	%HOH	%DEAF
Station ticket booth	32%	53%
Central reservation	20%	35%
Through travel agent	77%	65%

These figures indicate that it is deaf travellers who are likely to purchase tickets at stations. Most deaf and hard of hearing travellers prefer travel agents — perhaps someone familiar with their requirements — rather than attempt to use central reservation lines.

Two deaf respondents and thirty hard of hearing respondents have not been in any of the four types of terminal in the past three years. Reasons tend to include use of a car and old age. Of the hard of hearing sample, two people hadn't travelled due to inaccessibility of terminals.

Respondents were asked about effectiveness of telephones in terminals. The hard of hearing group was split on the effectiveness with hearing aids, convenience of locations,

location marking, ease of using with a wheelchair, and adaptability for a TDD. There was, however, some sentiment that more volume control units should be installed. The deaf group was generally less satisfied with phones, especially in terms of location. (These results were similar for all modes of travel.)

Respondents were generally quite pleased with staff behaviour, strongly endorsing their helpfulness and patience, but doubting how fully staff are trained to work with travellers with this disability. For example, 83% of hard of hearing individuals found staff helpful. Only 30% thought that staff knew they should look directly at customers. Despite good attitudes on the part of staff, no mode had more than about a third of respondents finding staff *able* to communicate by other methods even though their attitudes were friendly.

Looked at in detail, how do the different modes compare as to problems encountered? (Blanks in the table below indicate non-applicable entries.)

PROBLEM	%HOH	%DEAF
Talking to ticket staff		
air	53%	50%
rail	50%	78%
bus	51%	29%
ferry	44%	71%
Check-in announcements		
air	87%	75%
rail	74%	90%
bus	71%	71%
ferry	65%	83%
Waiting-to-leave announcements		
air	92%	81%
rail	82%	90%
bus	75%	71%
ferry	72%	86%
Radio Band		
air	82%	
Finding Devices		
air	74%	85%
rail	69%	89%
bus	69%	80%
ferry	64%	80%
Passenger Announcements		
air	88%	93%
rail	86%	90%
bus	74%	83%
ferry	64%	83%
Baggage Information		
air	45%	38%
rail	45%	70%
bus	33%	33%

ferry	33%	40%
Information: Buses & Hotels		
air	50%	59%
rail	49%	63%
bus	54%	50%
ferry	48%	60%
Security		
air	33%	50%
Background Noise		
air	11%	
rail	84%	
bus	80%	
ferry	64%	

Not surprisingly, the most frequently indicated problems for both sample groups were those involving the delivery of important announcements regarding transportation.

When asked the nature of problems encountered onboard vehicles, those most frequently identified involved the transfer of information.

PROBLEMS ONBOARD VEHICLES	%HOH	%DEAF
Messages on PA system		
air	86%	75%
rail	68%	88%
bus	77%	83%
ferry	74%	86%
Safety information		
air	43%	29%
rail	39%	75%
bus	43%	50%
ferry	45%	67%
Communications with staff		
air	44%	63%
rail	39%	85%
bus	55%	50%
ferry	36%	86%
Movies/entertainment		
air	63%	81%

It is noteworthy that problems with public address message systems were more frequently mentioned than problems with staff or with safety information. Entertainment on airplanes was also a source of problems.

3.5 AIR TRAVEL

Related to the difference in average age, the hard of hearing group consisted of largely discretionary or holiday travellers while 40% of deaf travellers travelled primarily for business reasons.

Half of the hard of hearing group reach the terminal by private car and 30% use taxis or limousines; the remaining 20% used various other means. For the deaf group, all ground modes are used without a clearly dominant methods. Results for other property types are similar and will not be reported separately below.

The following table shows the range of reactions to specific terminals. For this report, anonymity will be maintained.

ID#	"GOOD"	"BAD"	% FAVOURABLE	NUMBER
8	5	2	71%	7
9	7	3	70%	10
11	13	7	65%	20
12	24	16	60%	40
13	10	8	56%	18
14	11	10	52%	21
15	40	39	51%	79
16	2	3	40%	5

It should be noted that this chart, as well as charts in the following three sections refers only to those properties noted by five or more respondents. A total of twenty individual properties were identified.

3.6 RAIL TRAVEL

As with data on airports, the following table shows the range of reactions to specific railway stations.

ID#	"GOOD"	"BAD"	% FAVOURABLE	NUMBER
4	6	2	75%	8
5	8	3	73%	11
6	6	3	67%	9
7	10	11	48%	21
8	3	4	43%	7
10	3	7	30%	10

3.7 BUS TRAVEL

People in the sample were not frequently present in bus stations as wellwishers. The chart below therefore reflects their experiences primarily as travellers.

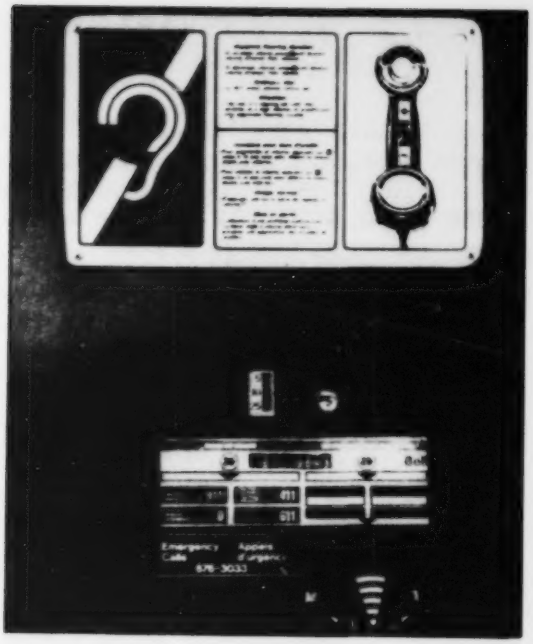
ID#	"GOOD"	"BAD"	% FAVOURABLE	NUMBER
10	4	1	80%	5
11	6	3	67%	9
12	3	2	60%	5
13	9	7	56%	16
14	5	4	56%	9
15	9	8	53%	17
16	1	1	50%	2
17	1	1	50%	2
18	5	7	42%	12

3.8 FERRY TRAVEL

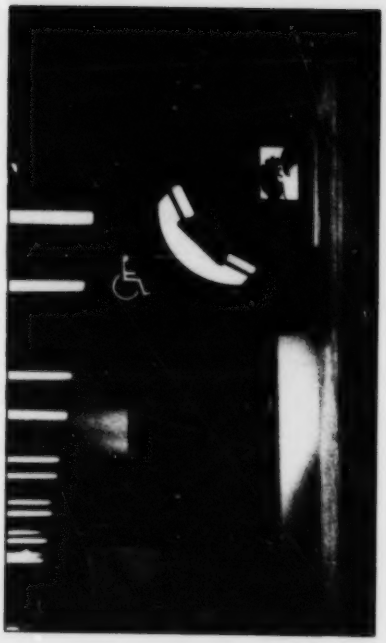
Business travel accounted for less than 10% of those who used ferries. About 80% of the sample reached the terminal by private car. For the most part, ferry travel was considerable less frequent than use of the other modes. This is reflected in the small number of terminals identified five or more times.

ID#	"GOOD"	"BAD"	% FAVOURABLE	NUMBER
11	11	3	79%	14
13	9	11	45%	20
16		5	0%	5

It is noteworthy that data analysis for the four modes of travel show few differences. In all four cases, respondents identified the delivery of information as one of the major sources of difficulty both onboard transportation vehicles and in terminals. *It might be recommended, therefore that particular attention should be paid to information media in further development of accessibility features.*



VOLUME CONTROL, HEARING AID COMPATIBLE TELEPHONES ARE A BLESSING FOR THE HARD OF HEARING TRAVELLER.



NON-STANDARD SIGNAGE CAN BE CONFUSING.

INFORMATION SYSTEMS USING A TELEPHONE ARE A CURSE FOR DEAF OR HARD OF HEARING TRAVELLERS.

4. TECHNICAL AIDS FOR THE DEAF AND HARD OF HEARING: ASSISTIVE DEVICES CURRENTLY IN USE

4.1 TELEPHONE DEVICES

4.1.1 Compatible telephones

Until quite recently, the production of a magnetic field was a standard process in the operation of a telephone. It was created by a flux coil in the telephone handset. The field was put to use in enabling hard of hearing people to use the telephone successfully. A flux coil designed into the hearing aid allowed the interception of this magnetic field and the amplification of sound. This was a boon for the majority of hearing aid users.

Contemporary telephones, on the other hand, are frequently lacking this magnetic field, as the flux coil has been eliminated from the design. This, in turn, has made many of these telephones inaccessible to the hard of hearing. Fortunately, lobbying on the part of consumer advocacy and special interest groups has been successful in creating some awareness on the part of telephone manufacturers and suppliers. Home telephones containing a flux coil have reappeared on the market. As well, the majority of payphones are now flux coil equipped.

As of June,1989, the CRTC has approved an intervention by the Canadian Hard of Hearing Association requesting that flux coils be made mandatory in all telephones. In the United States, similar legislation has been in place for some time.

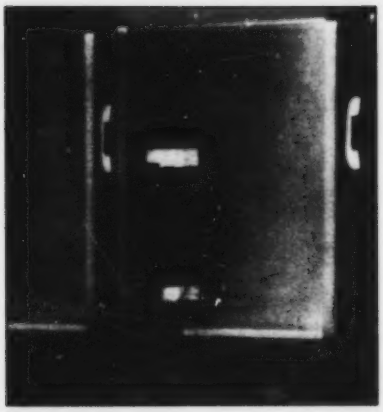
This intervention will not, in all probability, have great influence on the equipping of transportation terminals. For the most part, all public phones currently in use are flux-coil equipped and are thus accessible to hearing aid users. Some attention should, however, be paid to house phone systems currently in use to ensure that they also meet CRTC guidelines.

4.1.2 Adjustable volume telephones

Telephone companies in Canada have, for many years, made available volume control handsets for installation in homes or in places of business. These handsets are not designed specifically for use by the hard of hearing. Thus, they may not be compatible with hearing aids.

Many payphones are now equipped with a special, tamper-proof, adjustable volume handset. These phones are designed primarily for use by the hard of hearing and *are* therefore compatible with hearing aids. Prices range from $5.00 to $75.00.

This study has revealed that the vast majority of transport facilities are indeed equipped with these adjustable volume telephones. In most cases, however, numbers are insufficient to meet the needs of the deaf and hard of hearing traveller.



TELEPHONES WITH A SPACE BESIDE THEM PROVIDE ROOM FOR THE TDD CARRIED BY MANY DEAF PEOPLE.

TELEPHONES SET IN THE MIDDLE OF THE SPACE MAKE LIFE DIFFICULT FOR TDD USERS.

A TDD AS PART OF A PAY TELEPHONE IS IDEAL FOR DEAF TRAVELLERS. WHEN ANOTHER TDD ANSWERS THE CALL, THE TDD SLIDES OUT.

To ensure accessibility, each telephone bank should be equipped with at least one adjustable volume unit.

4.1.3 Telecommunication devices for the deaf – TDDs

During the 1960s, the development of a coupler allowed Baudot transmission by Telex machines over regular telephone lines. For the first time, profoundly deaf individuals were given access to the telephone. These converted machines, known as TTYs, became quite popular, and a large network developed throughout North America. The design of TTY equipment has advanced considerably in the last few years. Today, the emphasis is on portable equipment known as TDDs. There are a number of TDD models currently on the market, coming primarily from two major and a number of minor manufacturers in the United States. Like the old TTY system, TDDs make use primarily of Baudot transmission.

It is true that some of the more expensive and sophisticated TDDs are capable of ASCII transmission as well as Baudot. This facilitates TDD-to-computer communication. As well, there is a trend toward ASCII only equipment. This might be indicative of future design and use patterns, although it will take many years for ASCII to replace Baudot as the standard.

In addition to transmission formats, there is considerable variation in the other features of TDDs. Features such as built-in printers, large memory, auto-answer capability, etc. have created a TDD price range of $250.00 to $1,000.00.

A logical step in the evolution of the TDD has been the development of "hardened" models which are readily available for use by the general public, and are thus particularly relevant to the issues of accessibility. A model currently on the market has been integrated into the standard payphone unit. Other models consist of a TDD in a coin or key accessible cabinet located in close proximity to a regular payphone.

For the travelling public, the TDD is an important source of telecommunications accessibility. TDD equipment is a vital link in booking tickets, acquiring arrival and departure information, and in placing personal phone calls from within the transportation facility. For the most part, this latter need has been largely unaddressed. Many transportation facilities are equipped with TDDs for incoming calls. Few, however, provide TDDs for the use of the travelling public. If and when these are available, they are generally in a "secured" area, with access through an information desk or an administrative office. This is largely the result of concerns with regard to vandalism. This problem could be eliminated through the use of "hardened" units as described above. A unit currently on the market retails for $1,500.00 (US).

4.1.4 Facsimile (fax) machines

The facsimile machine, or fax, has been a standard part of the well-equipped office for almost a decade. Technology has, however, made considerable advances. The fax of

today is small, lightweight, and has standard capabilities that would have been beyond the imaginations – and budgets – of fax users of the past.

Fax equipment is now available for home use. For the deaf or hard of hearing person, this has a number of advantages. Perhaps the most significant of these is the ability to transmit hand-written messages, drawings, etc. This eliminates the need for typing, which is a standard requirement of the TDD. Frequently, older people with hearing impairments find typing to be difficult. A second advantage of the fax is its ability to transmit messages in a more natural, personal format.

There are, however, two major drawbacks to fax equipment for the deaf and hard of hearing. First is its not inconsiderable price. Most fax equipment is, in fact, in the area of $1,500.00 or more. This puts it out of the reach of many potential users.

The second drawback to the home fax machine is the (presently standard) cut-off feature. As fax machines are frequently used for long-distance transmission, this feature automatically disconnects the line a few seconds after transmission is completed. Intended to function as a money-saving feature for document transmission, it does not allow for continuous conversation between deaf and hard of hearing users.

Due to these problems, the personal use of facsimile machines in the transportation environment is not a likely event. Doubtlessly, potential travellers will use the fax in requesting bookings or schedule information as machines become accessible through offices, etc. For the most part, however, the TDD will remain the telecommunication device of choice for personal use.

4.2 TEXT-TO-SPEECH AND SPEECH-TO-TEXT SYNTHESIS

Of greatest value to the deaf telephone user would be the advent of technologies capable of converting speech (from a hearing person) to text, and text (from a deaf person) to speech.

The concept of text-to-speech is not new. It has, in fact, been available in a number of forms for several years. Most contemporary computers can be equipped with software which will synthesize speech from text. Speech-to-text, on the other hand, is still very much in the developmental stages, despite the fact that its potential has been under investigation for at least twenty years. There are currently a few computer programs on the market which are capable of converting speech to text. These programs are, however, very expensive, despite limited capabilities. Efficient, cost-effective equipment will not, unfortunately, be available in the near future.

There are two major barriers to the development of speech-to-text technologies. The first is the current lack of knowledge of the process by which the human mind decodes auditory input. Without this understanding, it is impossible to simulate the process in computer software/hardware. As previously stated, there are programs available. Unfortunately, these only function if the user speaks in single, well spaced words.

The second barrier is that of noise. As it usually occurs in the same frequencies as the human voice, the computer is unable to distinguish between noise and vocal input. This problem is currently under investigation by the US Air Force.

The Transportation Development Centre of Transport Canada has been involved in the development of speech-to-text and text-to-speech technologies for some time. Three of the systems developed under the auspices of the TDC include *Communicaid II* and *Translaid* (multi-modal) and *ITIS* (text-to-speech).

4.2.1 *Communicaid/Communicaid II*

As of 1984, the Transportation Development Centre initiated the development of an integrated communications system for individuals with "communication impairments," including speech, language, or hearing difficulties. The main purpose of this system was to provide assistance to both travellers and carrier agents in transportation terminals.

The resulting system, *Communicaid*, was evaluated in service at Vancouver International Airport during 1986 and 1987, providing much-needed information on arrivals and departures, as well as on the location of key terminal services. This prototype evaluation identified a number of shortcomings in the system. These include:

- screen and control operation which can prove intimidating to travellers not comfortable with the use of modern computer devices;
- the lack of an eye-level screen to accomodate travellers with visual impairments, and
- the necessity for attendant assistance in the making or altering of bookings.

Based on these findings, development has begun on a second generation model, which will address these drawbacks, as well as featuring a more compact design.

As with its predecessor, *Communicaid II* will be evaluated in service at Vancouver International Airport.

4.2.2 *Translaid*

In addition to research and development of *Communicaid II,* the Transportation Development Centre has been investigating the possibility of a portable device with similar capabilities.

Translaid presents a touch-screen and speaker to both the traveller and agent. Menu selection provides access to a limited memory of words and phrases frequently encountered in the transportation setting. The unit has bilingual capabilities for both input and output. (English and Chinese capabilities will be available for demonstration and evaluation. The travellers screen will present the language he or she has selected. The agent's screen will display French and English.) It is, however, the units English-to-English and French-to French capabilities which are of particular interest to

the hard of hearing traveller

Translaid is currently being prepared for prototype evaluation at Vancouver and Dorval International Airports.

4.2.3 Integrated Transportation Information System (ITIS)

ITIS is a multi-mode, multi-media system which offers information about traffic conditions, public transit schedules, intercity transportation, and hospitality services. Information can be accessed through telephone, home computer, special video displays in designated centres, and possibly, through cable TV.

This is a computer based system which stores and updates a database. Information is delivered either in the form of a video picture, or as a synthesized voice message.

ITIS was evaluated in service at eight Skytrain stations in Vancouver during Expo 86. A full system is currently being installed by B.C. Transit in Victoria. It should be operational by the summer of 1991.

As previously stated, the *ITIS* system is not as applicable to the deaf and hard of hearing consumer, as messages are delivered in the form of a synthesized voice. The video delivery capabilities, however, would prove most useful.

Please note: As these systems are still in the development stages, it is impossible to predict a final cost.

4.3 SIGNALLING DEVICES

There are a number of readily available devices which convert common household sounds to flashing light or vibration. These devices are used to replace the sounds of an alarm clock, a doorbell, or a ringing telephone.

Other household devices such as fire alarms and smoke detectors can be equipped with flashing lights as well as an auditory signal. Such light systems are available from all major installation firms. Interestingly, this represents an element of "technology transfer" – these systems were, for the most part, developed for use in the workplace, where background noises could render conventional alarm systems pointless. They have, however, proved of equal value in the home-life of the deaf or hard of hearing individual.

The signalling device should be a key element in the emergency system of every terminal. In addition, such devices could be used to signal the delivery of important information, or to indicate gate or time changes.

It is impossible to put a dollar figure on the range of signalling devices available.

4.4 ASSISTIVE LISTENING DEVICES

Many hearing aid users function well in one-to-one or small group situations, but have considerable difficulty in noisier environments, or when at a distance from the speaker or speakers. There are, however, several systems currently available which can overcome the combined problems of distance and background noise.

4.4.1 Loop system

A loop of wire connected to a loop drive amplifier and a microphone will create an electromagnetic field in the area defined within the loop. This field is picked up by the T-switch found on many hearing aids. This brings the sound directly to the hearing aid from the microphone, eliminating any background noise.

Loop systems have become a popular means of addressing the needs of hearing aid users. This is particularly true in transportation settings; in England, for example, most railway stations have been equipped with looped information areas. In addition, these systems have been used with great success in ticket booths throughout England and the Scandinavian countries. A major drawback of these systems is their rather cumbersome nature. Difficulty in transporting and setting-up usually dictates permanent installation.

There is one major drawback with the loop system: it functions only in conjunction with a T-switch equipped hearing aid. Unfortunately, in North America, there has been a move toward the use of in-the-ear and canal hearing aids. These devices are frequently too small to allow the inclusion of a T-switch. Prices for loop systems range from $400.00 to $2000.00, depending on the size of the area to be looped.

4.4.2 FM systems

There are a number of personal FM systems currently available for use by the hard of hearing. These systems convert sound to a designated FM frequency. The FM signal is then converted back to sound by a small transmitter worn by the system user. FM systems can be used successfully with both T-switch and non-T-switch hearing aid systems, as well as without a hearing aid. Like the Loop system, the FM system carries the sound directly to the user, while cutting out any background noise.

FM systems transmit a signal over a range of approximately 60 meters. If more than one system is in use in an area, interference can be prevented by the use of different frequencies – 32 frequencies have been designated for use by system users – or by reducing the range of the signal by shortening the system aerial.

The FM system is a popular solution to accessible messaging in many public venues such as airports and other transport terminals. When clearly marked, the FM broadcast area provides the traveller with an easily located listening zone, so that all information, especially important announcements, is readily available.

Prices for FM systems range from $600.00 to $1500.00.

4.4.3 Infrared systems

Infrared systems work in a manner similar to FM systems, although light rays, as opposed to radio waves, are used for transmission. As with the FM system, receivers are available for those who use hearing aids (with or without T-switch), and for those who do not use them.

Unlike FM systems, infrared rays are contained within the enclosed space in which they are being used for transmission. Therefore, even if several systems are being used within one facility, there will be no interference providing that individual transmissions are blocked by solid barriers.

Sunlight, however, can be a source of interference to infrared transmission. This problem can be overcome by shielding the system from the sun, or by increasing the strength of transmission. In terms of sheilding, the use of solar films has great potential. Recent developments have produced solar films which block narrow bands of specific light rays. Some research and development is warranted in the area of films capable of blocking intrusive infrared radiation. Until such films are developed, it is possible that the use of these films in some facilities may be limited.

Infrared systems range in price from $300.00 to $1500.00.

4.5 OTHER SYSTEMS

In addition to wireless systems such as loop, infrared and FM receivers, there are a number of portable communication systems which can be used by hard of hearing individuals in some situations.

One of the more popular of these systems is the Pocketalker. This consists of a small amplifier box, personal stereo type headphones, and a microphone. The microphone can be attached directly to the amplifier or used with an extension cord. This makes it possible to converse with a hard of hearing person even in a noisy environment. The amplifier provides a considerable increase in volume. It is therefore useful for many degrees of hearing loss.

Most of these systems are personal items, carried with the individual traveller. They do not require permanent installation, and can thus be used in a wide variety of settings, including transportation terminals, vehicles, etc.

Systems such as the Pocketalker cost in the area of $200.00.

5. RECOMMENDATIONS FOR IMPROVED ACCESSIBILITY

5.1 INTRODUCTION

Based on analysis of survey results, as well as on the twenty site visits made during the course of research, we have formulated a number of recommendations for the improvement of the current state of accessibility in Canadian transportation facilities.

While the mandate of our project was to address specifically the needs of the deaf and hard of hearing traveller, it is with some pleasure that we note the benefits of these changes to all potential users of airports and bus, train, and ferry terminals.

It is also noteworthy that the focus of our findings and recommendations is very much in the area of implementation. *The major problems rest not so much in the lack of suitable technology as in its conspicuous absence in airports, bus and train stations, and ferry terminals.*

For the most part, these recommendations do not represent a sizeable measure of financial outlay or of logistical difficulty for the facilities in question. In general, all can be implemented during routine maintenance and upgrading of facilities or at times of staff recruitment. Efforts made to meet these recommended changes will undoubtedly result in better relations between facility operators/carriers and the travelling public.

This is not to say, however, that there is no further need for research and development. While current technology does indeed address many of the needs identified in this study, there is room for further development in all areas. This includes keyboard entry for changeable message signs, improved human/computer interface for on-line translation and information systems, and improvements and advances in facsimile and TDD equipment.

5.2 RECOMMENDATIONS

5.2.1 Communication devices

1. All facilities should be equipped with one or more public accessible TDDs for use in outgoing calls. (The actual numbers will depend largely upon the complexity of the facility layout, as well as upon traffic flow patterns.) Equipment should be installed in clearly marked consoles or booths, with appropriate directional signage. TDDs should be installed in central or easy to locate areas.

2. All facilities should be equipped with a minimum of one adjustable volume

telephone per bank of telephones, although because of the popularity of these phones with the hearing public, fifty percent of the phones might well be so equipped. Whenever possible, these phones should be equipped with "card reader" and other convenience features. If the bank of telephones has both card and coin telephones, a minimum of one of each should have the adjustable volume feature. Ideally, public telephone banks should be modified to include at least one integrated TDD/payphone unit.

3. All adjustable volume telephones and TDDs should be indicated through the use of directional and identification signage. The sign to indicate services for deaf and hard of hearing people is the international symbol for accessibility for the hearing impaired.

4. All telephones in the facility including payphones, emergency phones, in-house phones and office phones must have flux coils so that they are compatible with hearing aids.

5.2.2 Traveller Information

1. A special "paging band" should be installed on existing information monitors. The public should have access to this paging band through a system such as dial-up access. Barring this, paging should be integrated into constant messaging systems as recommended in (3) below or into flip-disc, LCD, or LED signage.

2. All auditory announcements should be upgraded to include one or more forms of visual back-up. Back-up systems might include overhead electronic monitors, manually arranged schedule boards, clearly identified information kiosks, or flip-disc, LCD, or LED changeable message signage.

3. Special attention should be paid to the installation of constant messaging apparatus behind ticket and check-in counters, in departure lounges, and at information booths. Flip-disc or LED signage might be programmed to repeat key information such as flight delays and cancellations, as well as gate changes and instructions to passengers about pre-boarding, boarding by row number, etc.

4. As warranted by facility size and traffic flow, all information kiosks should be equipped with assistive devices such as an infrared system. Information should be available in printed form to as great an extent as possible.

5. All facilities should be equipped with a TDD for purposes of information and/or ticketing, and TDD numbers should be listed in several places in the telephone directory. An airport would, for example, list its number in the white pages (under the listing "X" Airport, and in the Federal "blue" pages, under Transport Canada. The number should also be listed in TDD directories and be included in all advertising materials.

5.2.3 Special procedures for deaf and hard of hearing users

1. All front-line staff (whether Transport Canada or carrier employed) should receive initial training upon hiring. This training should include awareness training, information about deaf and hard of hearing people, the use of technical devices, the fundamentals of communicating with hard of hearing and deaf people, and some basic sign language instruction. This should be supplemented and reinforced on a regular basis.

2. All information staff should receive a minimum of one half day's training in the proper use of TDD and other assistive equipment and systems.

3. All information and ticket booths, check-in counters and counters in departure areas should be adequately supplied with notepaper and pencils to facilitate communication.

4. All work stations in ticketing, departure, or information areas should be re-aligned to allow maximum eye-contact, as well as a clear view of terminal monitors.

5. All information booths or kiosks should be equipped with an assistive listening system such as an infrared system.

6. Staff should be provided with cards showing the basic signs required to communicate with deaf travellers. Such cards should be mounted in all places where personnel are in direct contact with the travelling public.

7. In smaller facilities, every effort should be made to have on staff an individual fluent in sign language. This staff member should be employed in a position which would allow the flexibility to deal with deaf travellers as required.

8. In large facilities, a full-time sign language interpreter should be on staff. Deaf travellers would be required to identify themselves at the time of booking to ensure the availability of the interpreter at the required time.

5.2.4 Emergency procedures

1. All fire or other warning systems should be supplemented by visible signals such as flashing lights or strobes.

2. These visible signals should be located throughout a terminal, and especially in isolated areas, including washroom facilities.

5.2.5 Further Research and Development

1. The development of changeable message electronic signage suitable for the rapid delivery of traveller information should be given high priority. A number of these systems are currently available. Unfortunately, most require programming skills beyond those of

the average transport facility worker. Emphasis should be on a simple key-board entry system which can be re-programmed to display messages as required.

2. Research and development of user friendly text and speech synthesis systems should continue. The goal should be a device which can be used without undue difficulty by the average traveller without attendant assistance. As well, these systems should be unmanned, and not require carrier personnel input.

3. Although assessment of carriers was not part of this study, it is clear from survey responses that deaf and hard of hearing travellers do encounter serious problems when dealing with the various carriers. We therefore feel that a follow-up study on carriers is warranted. Such a study will undoubtedly provide insights into the level of research and development required to make transport vehicles fully accessible to the deaf and hard of hearing.

4. Similarly, consideration should be given to researching the travel needs and patterns of individuals with sensory/motor, as well as multi-sensory, impairments. As this study was devoted only to the needs of deaf and hard of hearing people, we are aware that many issues and concerns relevant to this group have not been fully explored.

APPENDIX 1
INDIVIDUAL SITE VISITS

AIRPORTS

A1

Terminal: Built in 1955 and expanded for use as an international facility during the 1970's.

Communication devices: Adjustable volume telephones are located in most telephone banks. These telephones are clearly marked with pictogram and instructional diagram. There may, however, be some difficulty in finding these phones as there is no signage indicating the location of accessible banks.

The airport is equipped with one TDD. This is located at the information desk, and is marked by a small wall mounted pictogram. As for the phones, signage is inadequate, and travellers would likely have some difficulty locating the TDD. The information desk is equipped with the Bo-be Productions TDD directory. As well, information staff are trained in the use of TDD equipment. The TDD is stored within easy reach behind the information counter. Unfortunately, this does obstruct patron's view of it. In general, it is used approximately twice per week.

Use of TDDs for reservations, etc. is primarily the concern of individual carriers and their respective policies.

All paging of travellers, well-wishers, etc. is done through the use of the public address system. There is no visual back-up for the convenience of the deaf or hard of hearing (or other) passengers. As there is no house-phone system, all responses to a page must be made at the information desk.

Traveller Information: Arrivals and departures are regularly announced on PA system. These are frequently impossible to hear due to background noise, speed and tone of delivery, etc. (These conditions also apply to the delivery of paging.) There is some visual back-up in the form of gate attendants and CRT monitors, although these are only helpful if the passenger is near one or is familiar with their location. For the most part, monitors are well mounted, with colour-coded information clearly visible.

Strictly speaking, the terminal is not information heavy. Services, key locations, etc. are readily identified by the use of well placed standard pictograms, and thus should not create any major problems for the terminal user.

Special procedures for deaf and hard of hearing users: As previously stated, there are no visual indicators of information such as boarding changes, etc. outside of that listed on the monitors. Outside of the TDD training (.5 day) given to information staff, there is no real training with regard to special needs. In general, dealing with deaf and

hard of hearing passengers is the responsibility of individual airlines. Pre-boarding is used if a disabled person is identified at check-in. The passenger will be assigned an agent for pre-boarding, or a boarding supervisor will be given special instructions. In extreme cases, the deaf or hard of hearing traveller can be assisted through security, etc. by an attendant, using a special pass provided through the airport manager.

Emergency procedures: Emergency clearance is accomplished through the use of alarm bells and emergency warning lights, backed up by facility personnel. The light system does include strobes to alert those passengers who are deaf or hard of hearing.

Use, complaints etc.: The facility manager does not recall any complaints relating to the terminal and its accessibility to the deaf or hard of hearing user. Personnel do not seem to have any concept of the patterns of facility usage by special needs travellers.

A2

Terminal: A small terminal of recent construction. A great deal of attention has been paid to the more obvious elements of accessibility, especially as they relate to the mobility impaired.

Communication devices: There are a number of adjustable volume telephones located in the main areas of the terminal. These are, for the most part, marked with a pictogram and instructional diagram, although this had been peeled away from one unit. No public accessible TDD is in evidence.

Traveller information: Arrivals and departures are announced on the public address system. This is backed by the use of well-placed monitors.

Special procedures for deaf and hard of hearing users: information not available.

Emergency procedures: All emergencies are announced via an alarm system with human back-up. There is no visual alarm system.

Use, complaints etc.: information not available.

Note: Researchers were unable to meet with facility management. For this reason, information is not complete.

A3

Terminal: Built in 1959. It is currently undergoing $3.5 million in renovations to meet TC accessibility guidelines.

Communication devices: Adjustable volume telephones are located in most main

telephone banks. They are clearly marked with a pictogram and instructional diagram. No signage to guide users specifically to these phones is evident.

An attempt has been made to meet all Transport Canada guidelines for accessible telephones: improvements were slowed considerably by the recent Bell Canada strike. There is a problem in finding fold-down seating for the use of the elderly and disabled with the current steel phone banks.

A TDD (the Minicom IV by Ultratec) is available at the information desk. It has been used infrequently (twice this past summer).

At present, the airport has no visual back-up of paging.

Traveller Information: Arrival and departure information is delivered over the public address system. This is difficult to understand because of background noise. Visual backup is provided by monitors and by gate attendants.

The terminal is information heavy. Three types of signage are currently displayed: directional, identification, and advertising. This makes it difficult to find required information (according to the station's "barrier free" architect). She considers the TC standard pictograms in use to be too neutral, and feels that the public is not really aware of the signage.

Special procedures for deaf and hard of hearing users: Again, there is no specialized training of staff. In general, attending to the special needs of passengers is the responsibility of the airlines. Deaf or hard of hearing passengers should identify themselves at check-in, and will be assigned an agent for pre-boarding, or the boarding supervisor will be given special instructions.

Emergency procedures: A new set of emergency procedures are currently being planned. It will include flashing exit signs in the washroom facilities. Currently, emergency announcements are made on the public address system. This is backed up by two to three clearly marked staff people per floor.

Use, complaints, etc.: Staff are not really aware of any complaints specific to hearing problems, nor of the patterns of use of the facility.

A4

Terminal: Opened in 1937. It is a small, relatively old, run down facility and has not been updated in any respect within the last 50 years. Used primarily by small commuter airlines, as well as by privately owned craft.

Approach to the terminal is via a small ferry. No sign to indicate the direction of the main terminal is visible once off the ferry. This may be confusing for any passenger not familiar with the airport's travel procedures, which includes a free shuttle bus service for

travellers of the main commuter airline. Generally, the deaf or hard of hearing passenger could avoid confusion simply by following other passengers. There is only one way to go.

Communication devices: No devices specific to the hard of hearing or deaf passenger are available within the terminal. There is an information booth and a small waiting area equipped with washrooms and telephones. The telephone area has no signage but is quite visible due to the smallness of the facility. No adjustable volume telephones are available.

Traveller information: Information sources consist of tickets, placard type visual displays, and verbal communication (in person or via a public address system.) Departures are announced via the public address. Passengers for a number of flights intermingle in the one departure area and are routed to the proper planes. This could be confusing should the passenger not be aware that their departure has been announced. Arrivals are not announced. This should not create confusion as incoming traffic is generally slow, and there is only one arrival gate. (As well, arriving passengers are rarely met. The airport is too small to accomodate large numbers of well-wishers.)

Signage throughout the facility appears relatively clear and concise, although there has been little if any effort to adhere to international signage standards. Some signage near the dock/ferry has been weathered and could be improved upon.

In general, the facility is too small to require extensive informative signage. This would in fact add to the confusion.

Special procedures for deaf and hard of hearing users: All staff of the principal commuter line receive some training pertaining to disabled passengers. Members are instructed to assist any passenger who appears to need assistance or asks for it. In the case of a deaf or hard of hearing passenger, staff would communicate via pen and paper. It is preferred that special needs travellers contact the carrier in advance. Pre-boarding is also used, although this is less than satisfactory for our purposes. Pre-boarding is announced.

Emergency procedures: Emergency conditions are announced via the use of warning bells and sirens. There is no visual back-up, although the process is policed by staff. As the facility is small, this would prove adequate, although not ideal.

Use, complaints, etc.: There is no recollection of complaints or comments from deaf or hard of hearing users. Staff are, however, aware of complaints relating to wayfinding which may impact on this group.

Noise due to incoming airplanes appears to be a problem at the terminal for all concerned. A new terminal, better signage, and noise control were highly favoured by the facility manager.

Terminal: Designed in 1982, prior to standards for accessibility in 1986. It is currently being renovated and upgraded. The previous terminal was totally inaccessible.

Communication devices: Adjustable volume telephones are located in most main telephone banks, although there are none in the central departures area. Telephones are clearly marked with a pictogram and instructional diagram. Several are mounted in wheelchair accessible consoles. A major drawback is the lack of signage to guide users to hearing accessible telephone banks. A wheelchair pictogram does guide people to machines in accessible consoles.

Currently, all stainless steel phone banks being replaced by wheelchair accessible wooden consoles. The perfect design has not been found yet.

A TDD is available through the airport manager. This is checked regularly to make sure it is in good working order. No sign informing travellers of its presence was evident. Use of TDDs for reservations, etc. is primarily the concern of individual carriers and their respective policies.

The current manager is concerned with the lack of visible paging and has submitted a request to Air Canada for the inclusion of an information band on their monitors to serve this purpose. No definite word has been forthcoming as of yet.

Traveller information: Arrivals and departures are announced on the public address system. They are frequently impossible to hear due to background noise, speed and tone of delivery, etc. Especially confusing are frequent gate and time changes. Visual back-up is present in the form of gate attendants and monitors, although these only helpful if the traveller is near one or if their exact location is known.

Services, key locations, etc. are indicated through the use of pictograms. The terminal is information heavy. There is no differentiation between information levels – all are presented the same way in the same lettering. The back-lit black on white signage is also difficult to read in brightly lit terminal. This is currently being reconsidered.

Three pictogram standards are in use concurrently – international, Federal Identity Program, and Transport Canada. This will also be rectified, although there is some question as to which will be the final choice.

Special procedures for deaf and hard of hearing users: No real training is provided for staff with regard to special needs. In general, dealing with deaf and hard of hearing passengers is the responsibility of the airlines. Pre-boarding is used if the special needs passenger is identified at check-in. He or she will be assigned an agent for pre-boarding, or the boarding supervisor will be given special instructions.

Emergency procedures: Currently, the airport is planning the installation of emergency flashers (flashing exit sign) in washroom facilities. Hard of hearing

individuals are now dealt with in the same way as other passengers in emergency situation: clearly identifiable staff evacuate all people from the terminal.

Use, complaints etc.: The manager does not know number of deaf or hard of hearing travellers using the terminal but suspects that the number is high. He does not recall any complaints relating to the terminal and deaf or hard of hearing travellers.

During National Access Awareness Week past, the facility hosted a number of tours for disabled individuals. Some hard of hearing and deaf visitors were among them.

A6

Terminal: Small terminal building designed prior to implementation of airport security features. The terminal has recently been adapted to include international arrivals/departures (charter flights only). It has a simple layout, all on one level. The departure area is centrally located and easy to find.

Some confusion is caused by "visual noise" – walls are covered in a jumble of meaningless supergraphics, ads for local photographers and tour services, as well as examples of local crafts. The jumble tends to detract from important signage.

Communication devices: There are two phone banks, both with variable volume phones clearly marked by the standard pictogram for hearing accessibility. There are no phones in central waiting area. The one phone in the departure area is not variable volume.

The airport has a centrally located information desk with two push button infophones: one French, one English. These do not have adjustable volume. They are in fact, pointless. One airport security person pointed out that they have never worked. The desk is generally staffed by a security worker.

No TDD is available in the airport. When asked, one airline worker had not even heard of such a device. She did not know if airline's booking office had one available for use.

Limousine stations inside airport are manned by drivers. There are some direct line phones to cabs, not variable volume.

Traveller Information: Arrival and departure are announced on the public address system. There is no real visual back-up of verbal announcements except at the gate itself. This is not too complicated as there are only two gates situated at either end of a departures lounge. Changes, delays, etc. are visible on boards at gate. There is one central security gate which is impossible to miss.

Two banks of information monitors are located in the main public are – one in the central waiting area and one at the luggage conveyor. Monitors are also situated behind ticketing counters, although they are not clearly visible. All monitors belong to Air

Canada. No consideration has been given to the addition of an information band for paging.

Monitors are badly mounted, as they tend to obscure banks of pictograms directing passengers to facilities and services. Pictograms themselves are ceiling mounted, back-lit bands of black on white. Bright lighting in the airport tends to cause glare, making pictograms difficult to read. Pictograms used are standard International and should cause no confusion.

Special procedures for deaf and hard of hearing users: There is no real training for airport staff. Dealing with deaf and hard of hearing passengers is generally the responsibility of carriers themselves. The airport does have special lift chair for wheelchair passengers to facilitate boarding. As for carriers, there is no real plan here either. One ticket person stated that an attempt would be made to find a staff person capable of using ASL or a pad and pen would be used. As stated before, this person had never heard of a TDD and did not know if one was available.

Emergency procedures: Emergencies are dealt with through public address announcements backed by staff. A visual alarm system will be installed in public areas and in washrooms this year. This will consist of flashing exit signs.

Use, complaints, etc.: Management has no real idea of deaf or hard of hearing traffic. There is no memory of complaints about the facility, and no log is kept of complaints unless received in writing.

A7

Terminal: Refurbishing completed in 1987. The facility is small with one permanent holding room (two gates) and an additional room off by partitions when another gate is needed.

Communication devices: Most main telephone banks are equipped with adjustable volume telephones, although there is no signage indicating this fact.

No TDD is available in the airport, either for bookings and information, or for patron use.

Traveller information: Arrivals and departures are announced on the public address system. There is no visual back-up, although the single lounge arrangement eliminates many potential problems. Travellers requiring assistance can note movement and inquire at the gate desk. There is, however, some back-up through the use of CRT monitors

As in most airports, CRT monitors are the property of a single major carrier. In the case of this airport, only flight information relating to that carrier and its subsidiaries is included in the visual display. Other carriers rely solely on the use of announcements and gate attendants.

For the most part, information on the monitors is readily accessible, as monitors are well arranged, low-hung, and well lit. In addition, late and early flights are colour coded.

In general, there is no paging and no house-phones.

Special procedures for deaf and hard of hearing users: No real training with regard to special needs is provided for staff. In general, dealing with deaf or hard of hearing passengers is the responsibility of airlines.

When necessary, patrons may go to the manager's office for assistance, although again, there is no training and no available TDD.

Emergency procedures: Evacuation and emergency procedures are announced through the use of sirens and alarms, backed by airport staff. Currently, no special visible warning devices are employed, although the installation of strobes or flashing signs is being considered.

Use, complaints etc.: Staff have very little contact with deaf or hard of hearing travellers, and are therefore unaware of use patterns. Similarly, there is no knowledge of any complaints, either to airport management or to Transport Canada.

A8

Terminal: Older building, designed in 1957 and continually updated. The terminal is small for the volume of traffic it handles, and is somewhat cramped and confusing.

Communication devices: There are some adjustable volume telephones, although these are scattered irregularly through the building. Numbers are not adequate for a terminal of this size. Telephones marked with pictogram and instructional diagram. Most are mounted in wheelchair accessible consoles.

There is no signage to guide users to adjustable volume phones.

Two TDDs are available in the terminal. Transport Canada information desks are equipped with a TDD for public access. The TDD is kept behind the desk for security reasons. Although desks marked with the standard blue pictogram, this is not in a highly conspicuous place.

The TDD in the information office is used for inquiries regarding flight information, travel, etc. A TDD number is listed in the telephone directory. The office log shows that incoming calls have averaged four per month since June of 1987.

Paging is handled by the information office, and has no visual back-up. The terminal has no house phone system. We were informed that messaging is not possible on information monitors, as there is "simply no room" for an additional band. The concept of

"self-help" information counters is currently being investigated. This could include a visual back-up of all paging.

Traveller Information: Arrivals and departures are announced on the public address system. Visual back-up is provided in the form of gate attendants, as well as monitor banks scattered throughout the terminal. For the most part, monitors are well placed and clearly visible, although the two-colour scheme of the monitors might make them difficult to read.

The terminal is information heavy, with a jumble of directional and identification signage. Much of the signage is somewhat ambiguous, and a number of complaints have been noted. Signs are mostly Federal Identity Program standard back lit black on white. Information staff feel that these signs are somewhat restrictive and are not as effective as they could be.

Special procedures for deaf and hard of hearing users: All Transport Canada information staff are given some training in the needs of disabled passengers, including the use of the TDD. This training program includes the CHS film "One to One." Training has been well received by staff members. This is one-time training, with no refreshers.

Emergency procedures: Emergency alerts are delivered via the public address system. Duty managers and security staff supervise evaluation procedures when needed. There is no visual back-up of emergency alerts.

Use, complaints etc.: While there is no clear idea of the frequency of use by deaf and hard of hearing travellers, the overall impression is that it is not large. While our contact was unaware of complaints pertaining to issues specific to accessibility features, there have been a number of complaints regarding the clarity of signage and monitor coding.

A9

Terminal: Building opened in 1973, currently being upgraded and expanded. The terminal is a large linear structure with arrivals and departures levels. Each level is divided into three distinct areas: domestic, transborder (U.S.) and international. Passengers or well-wishers arriving would simply enter at the appropriate section, and would therefore have little contact with the airport as a whole. Each section is self-contained, and is directly accessible from the parking facility. All wayfinding elements within sections are colour coded (grey for transborder, red for domestic, and blue for international). This colour coding extends to the borders of ceiling mounted signs. Staff feel this to be an effective wayfinding element.

Communication devices: There are some adjustable volume telephones, although these are scattered irregularly through the building. Numbers are not adequate for a terminal of this size. There are in fact only five adjustable volume phones located in the

entire terminal. Telephones are marked with a pictogram and instructional diagram. Most are mounted in wheelchair accessible consoles. Airport authorities are in the process of changing this. All phones will be placed in low consoles which will be comfortable for all users.

There is signage to guide users to adjustable volume phones. This consists of a white on black enamelled sign depicting a telephone receiver, the wheelchair pictogram, and an ear. Although somewhat non-standard, the sign does get the message across.

TDDs are available in the airport. Transport Canada information desks are equipped with a TDD for public access. The TDD is kept behind the desk for security reasons. Although the desk is marked with the standard blue pictogram, this is not in a highly conspicuous place.

The TDD in the information (administration) office is used for inquiries regarding flight information, travel, etc.

Paging is handled by Air Canada and has no visual back-up. The terminal has a courtesy phone system, although phones are somewhat inconspicuous, and are not adjustable volume.

Traveller information: Arrivals and departures are announced on the public address system. Visual back-up is provided in the form of gate attendants, as well as monitor banks scattered throughout the terminal. Monochrome monitors tend to be ill-placed, and are frequently unreadable. In addition, the system is in need of maintenance or replacement.

Boarding announcements are supported by the flashing of an illuminated gate sign in the departures area. This sign (the gate number) is easy to read from most points in the lounge.

The terminal is information heavy, with a jumble of directional and identification signage. Much of the signage is somewhat ambiguous, and a number of complaints have been noted. Signs are mostly Federal Identity Program standard back-lit black on white. A number of unusual and confusing pictograms are in use. The terminal's wayfinding and orientation system is currently being reconsidered. Improvements will include the elimination of unnecessary signs, as well as the modification of pictograms. It is hoped that this will relieve the information overload expressed by many users.

Signage is also plagued by glare throughout the building. The reflection of sunlight and artificial lighting on the glass fronted illuminated signs renders them virtually illegible.

Special procedures for deaf and hard of hearing users: All Transport Canada information staff are given some training in the needs of disabled passengers, including the use of the TDD. This training program includes the CHS film "One to One." Training has been well received by staff members. This is one-time training, with no refreshers.

All carriers are subject to their own training policies.

Emergency procedures: Emergency alerts are delivered via the public address system. Duty managers and security staff supervise evaluation procedures when needed. There is no visual back-up of emergency alerts, although emergency exit signs will light up. These signs indicate exits which are not accessible under normal conditions.

Use, complaints etc.: While there is no clear idea of the frequency of use by deaf and hard of hearing travellers, the overall impression is that it is not large. While our contact was unaware of complaints pertaining to issues specific to accessibility features, there have been a number of complaints regarding the clarity of signage and monitor coding.

BUS STATIONS

B1

Terminal: Historic turn of century building recently renovated to include a number of features for disabled passengers. These include facilities for the deaf or hard of hearing user. The layout is extremely simple; there is one central rectangular waiting area on ground floor with all services located around the perimeter. One departure gate is used.

The terminal itself is easy to find, with no complex exit or entry patterns. It is located on a main street of the city, and is a well known historic complex. There is ample parking for disabled users.

Communication devices: The phone bank in central waiting area includes a variable volume, clearly marked. A TDD is used for phone-in reservations. The TDD number clearly listed in telephone directory.

Traveller information: Arrivals and departures are announced on the public address system. Visual back-up of departure announcements is provided through a flashing light at the single departure gate. All passengers move through one door and are directed by ticket checkers to the proper bus. This is generally not a problem, as there is rarely more than one bus moving at a time.

All services easy to find as they are located around perimeter of room. All are marked with clearly visible standard pictograms.

Special procedures for deaf and hard of hearing users: Terminal staff are sensitized to the needs of the disabled. Limitations of the old building are overcome in any way possible. Staff have some experience in dealing with a flow of deaf and hard of hearing passengers, and generally employ a pad and pencil in communication.

The carrier also provides a regular cross-province service for the disabled with a specially equipped bus. Round trips are made three times per week. The bus will be equipped in the near future with a visible monitoring system which will announce drop-off points. It may well prove cost-efficient to equip all buses with this feature.

Emergency procedures: Emergencies are dealt with through public address announcements backed by staff. There is no visual alarm system, although human organized clearance could be achieved in a matter of seconds. (This includes the washroom area.)

Use, complaints, etc.: The single carrier operating out of the station has a regular charter with the Provincial School for the Deaf. Children are picked up at the school on weekends and brought to their homes across the province, returning late Sunday. As well, changes to the station were carried out with counsel from several interest groups for the disabled, keeping complaints at a minimum.

B2

Terminal: Built in 1962. It is small, with a simple layout.

Communication devices: There is one adjustable volume telephone, clearly marked with a pictogram and instructional diagram. It is not mounted in a wheelchair accessible console.

There is no TDD available in the station.

Traveller information: Arrivals and departures are announced on the public address system. A board with stick-on letters is used for the slowly varying bus schedule. This is quite readable, and is situated only a few feet behind the ticket sellers. The terminal is information poor, although visual back-up for most arrivals and departures is provided by a clear view of happenings outside the terminal. Both exit doors are located in a clear glass wall, so that destination signs on buses are clearly visible. It would be difficult to get lost or confused.

Aside from traffic information, the public address is rarely used. There is no paging and no house phone system.

Special procedures for deaf and hard of hearing users: No training is provided for staff with regard to special needs. In general, dealing with deaf and hard of hearing passengers is the responsibility of carriers. This station has an advantage in that one of the employees of the cargo division uses ASL and is available to provide assistance when needed during her shift.

The station has a number of deaf users on a regular basis. In most cases, individual communication patterns have been worked out. Pad and pencils are always nearby.

Emergency procedures: The station manager states that there are no formally established emergency procedures of any sort. He says he'd "probably use the P.A.." backed by staff members. There are no warning lights or flashing exit signs in the building, although the building could be effectively evacuated without them.

Use, complaints etc.: The station usually has deaf or hard of hearing passengers about twice per week. The manager does not recall any complaints relating to the terminal and accessibility.

B3

Terminal: Relatively new building, located at the junction of two main streets. The building is well marked and easy to find.

The building has two entrances/exits, although only one provides access to the loading platforms. The terminal is used by five carriers.

Communication devices: The phone bank in the central waiting area includes an adjustable volume telephone, clearly marked. There is no TDD available in the station.

Traveller Information: Arrivals and departures are announced on the public address system. Visual back-up of departure announcements is provided through a centrally located schedule board. Users are generally familiar with the schedule, as it rarely varies.

Each departing or arriving bus is assigned a platform number. Again, this is fairly constant for all carriers. Large glass doors and windows in the waiting area provide ample view of the happenings outside. Even in the event of multiple departures, it would be difficult to become confused.

All services are easy to find as they are located around the perimeter of the rectangular room. All are marked with clearly visible signage. There are few pictograms used, although, for the most part, none are needed. (The washrooms are marked by lighted pictograms.)

Special procedures for deaf and hard of hearing users: Terminal staff are sensitized to the needs of the disabled as there are a number of deaf and hard of hearing passengers making regular use of the facility. Communication is generally through a pad and pencil when necessary. Passengers identified as having hearing limitations are provided with additional assistance if needed, although this is a rare occurrence.

Emergency procedures: Emergencies are dealt with through public address announcements backed by staff. There is no visual alarm system, although human organized clearance could be achieved in a matter of seconds. (This includes the washroom area.)

Use, complaints, etc.: As previously stated, terminal staff are familiar with a number of regular users from the deaf and hard of hearing community. They are sensitive to the needs of the group, and are not aware of any complaints concerning accessibility. No special sensitivity training is provided.

B4

Terminal: In operation since 1969. The terminal covers one large city block. It is used by 17 companies, although Voyageur and Greyhound are the most prominent. Twenty-eight departure gates handle 1500-3500 per day in normal period, up to 10,000 at peak times.

Communication devices: Communication devices are limited. Of fifty public telephones in the terminal, only three are equipped with adjustable volume. All three are located in a central area, and are clearly identified by pictogram and instructional diagram. There is, however, no directional signage to guide users to the accessible phones.

Traveller information: At present, all traveller information is delivered over the public address system. It is not uniformly clear throughout the station, and is distorted by background noise. Announcements are delivered rapidly.

There is a visual display of gates and related destinations (departures only). There is a plan for the installation of a large visual display of arrivals in addition to the current departures display. This should be in operation by 1989 (forecast).

Additional information regarding departure and arrival times can be obtained at an information desk (for outside the province) or through a bank of five wall-mounted phones (for inside the province). The phones are not adjustable volume equipped.

The use of pictograms, etc. is limited. Passengers are directed to specific sections such as restaurant, washrooms, ticket counter, etc. through the use of arrows.

Special procedures for deaf and hard of hearing users: Very little training is provided for administration and staff. Some training is given to drivers, although is mostly centred on mobility impairments. In general, procedures for passengers with special needs depend on the traveller identifying him/herself. Security will provide assistance if requested. As well, the departure point will inform the destination of a need for special assistance if required.

Emergency procedures: No visual alarm system is used in the station. In case of fire, etc., an auditory alarm will sound. In general, police and/or security are in the station at all times. They will assist in the emergency evacuation of the facility, including passengers with special needs.

Use, complaints, etc.: Administration is not really aware of any complaints specific to hearing problems. They suggest that any which exist would be made to the information desk or to security personnel (There is no indication of complaints here, either.)

FERRY TERMINALS

F1

Terminal: Small rectangular building located next to ferry dock and a minor military installation. The rural route to the terminal is clearly marked from the main highway, although signage along the route is inadequate, especially for travellers not familiar with the area. The terminal itself is easy to identify as it is clearly marked.

The terminal is slated for replacement within the next few years. The new facility should have up-to-date accessibility features.

There are two approaches to using the station: waiting outside in cars for boarding of the ferry, or using the rectangular waiting area inside the terminal. The terminal is visually simple, with all services located on the perimeter of the waiting area.

Communication devices: There is one phone bank in the central waiting area. This includes one variable volume phone, clearly marked. A TDD is used for phone-in reservations. (The TDD number is clearly listed in the carrier's brochure.) A new TDD was recently installed at the facility. Currently in the operations office, it will soon be placed in main waiting area to serve the needs of deaf and hard of hearing patrons. (The staff person interviewed was not familiar with its use and did not know if it was available for passenger use. She was not, however, a member of the "front-line" staff.)

Traveller information: Arrival and departure announcements are made on the public address system. Visual back-up of departure announcements is provided through a flashing light system with red and amber lights located in the ceiling of main area and along the walls of washrooms. Flashing amber lights indicate boarding.

The single departure door is clearly marked. The terminal serves one ferry arriving one day and departing the next. Departure, arrival, and boarding information is clearly posted.

All services are easy to find as they are located around perimeter of room and are marked with standard pictograms.

All vehicles entering the terminal parking area go through a special traffic control booth or ticket booth. The latter is marked with an unusual pictogram of a ticket. This should be readily recognized.

Special procedures for deaf and hard of hearing users: Terminal staff are for the most part sensitive to the needs of disabled. Most have attended training seminars (the last one being held two years ago.) Staff are aware that communications may have to be carried out with pad and pencil. When necessary, inside and vessel staff are given advance notice of a disabled traveller. All disabled travellers are given access priority.

Emergency procedures: Emergencies are dealt with through public address announcements. The red and amber light system mentioned under travel information is also used here – a flashing red light indicates an emergency. (Again, the staff person interviewed was not aware of this feature, saying that she had never seen the red lights in use.) The single special washroom for the disabled is equipped with an emergency intercom to signal help.

Use, complaints, etc.: Staff were aware of "occasional use" by deaf and hard of hearing travellers. They were not aware of any complaints regarding the facility.

F2

Terminal: Small, simply laid out building immediately adjacent to ferry dock. It is clearly identifiable by the Transport Canada sign on the lawn. The rural route to the terminal is clearly marked from the main highway, as is the fee schedule for various vehicles.

The terminal services four ferries, each carrying sixty cars.

Communication devices: No amplified phones or TDDs are available in the facility.

Traveller information: Arrivall and departure announcements are made on a public address system with no visual back-up. There is only one exit door serving all four ferries. This could lead to some confusion. Passengers are sorted in parking lanes associated with the proper ferry, and are instructed to return to their cars by lanes: "Lanes 1, 2, and 3, please return to your cars." Seeing departing passengers could create some confusion for deaf and hard of hearing passengers parked in other lanes not yet summoned.

All services are easy to find as they are located around the perimeter of the room. They are marked with a mixture of standard pictograms and white-on-brown lettered signs. There is a centrally located, easily seen information desk (with a white-on-brown sign). We were informed that there had been no information requests this summer to the date of the interview.

All vehicles entering the departure area go through a special traffic control booth or ticket booth. This is readily recognizable. Exterior signage is in several forms, often not readily visible.

Special procedures for deaf and hard of hearing users: All staff are equipped

with a three-by-five pad and a pencil for use by deaf and hard of hearing patrons. When necessary, inside and vessel staff are given advance notice of disabled travellers. A small, inconspicuous and information heavy sign (see photos) indicates that disabled passengers should identify themselves when checking in.

Emergency procedures: There is no real emergency plan, although the manager indicated that the ships and facilities follow TC guidelines and have regular fire drills. No special policies or arrangements for deaf or hard of hearing users are in place.

Use, complaints, etc.: The manager is not aware of any complaints regarding accessibility. He has limited experience with hard of hearing or deaf passengers requiring assistance. Some do pass through in bus groups.

RAILWAY STATIONS

R1

Terminal: Classic train station with one major room.

Communication devices: Approximately 10% of public telephones are equipped with variable volume features. These are clearly marked with a pictogram and instructional diagram. None are mounted in wheelchair accessible consoles.

The station is equipped with a TDD, although this is used in the booking of tickets, etc., and does not seem to be accessible to the general public.

Traveller information: Arrivals and departures are announced via the public address system. Visual back-up is provided by a wall mounted information board, The board is large and information heavy but should be easily read. In addition, CRT monitors are located close by ticket sellers. The layout of these monitors is satisfactory, although, on the day of our visit, displays were somewhat out of focus, and thus difficult to read.

Additional visual back-up is provided by a large green light situated at the exit to platforms. This light is readily visible throughout the station.

For the most part, signage is adequate, and is easily read and understood.

All paging is done through the public address system. There are no house-phones, although there is a direct line information phone. This is not variable volume.

Special procedures for deaf and hard of hearing users: In keeping with VIA Policy, passengers with special needs are assigned assistance if and when they identify themselves. As well, "new" VIA employees undergo a one half day training session in the needs of the disabled, including the hard of hearing.

Other special features for the disabled include a specially designed accessible wicket. This has few advantages for the deaf or hard of hearing traveller, as ticket machines are not in the line of sight of the customer. As well, the small communications opening in the plexiglass barrier surrounding the wicket, as well as background noise in the station, make hearing difficult at the best of times.

In addition to this wicket, all staff are equipped with paper and pencils.

Emergency procedures: The station follows standard VIA emergency procedures, employing sirens or bells, backed-up by station staff. There is no visual alarm system.

Use, complaints, etc.: Staff are aware of "a few" special needs passengers per month. They were not, however, aware of any complaints regarding station accessibility.

R2

Station: Built in 1937, remodelled in 1988. The station is built in the classic style – it is essentially rectangular with all points visible. Ticket booths, etc. are made that much more obvious by the use of portable queuing.

Communication devices: Public telephones are located throughout the building. Each bank generally includes one adjustable volume phone although this phone was not clearly marked in the lobby area.

There is a TDD is the information office although, again, its presence is not indicated. Most people using it require no assistance.

Traveller information: There is a mixture of standard and non-standard pictograms, as well as lettered wooden and metal signs. These are generally visible as most essential services are around the perimeter of the room. There are examples of signs and services not so obvious in character and location, such as the medical services room. Here, there is a small metal desk-type sign that would not be obvious to the average traveller.

Station hours, departures and arrivals are announced via clearly visible changeable message signs. Arrivals and departures are announced via the public address system. There is little confusion, as the station has only one exit. Departing passengers are simply dispatched to the correct train by staff.

Special procedures for deaf and hard of hearing users: Again, there is no special procedure for the deaf and hard-of-hearing. In keeping with VIA policy, they are assigned special assistance as they identify themselves to the ticket seller.

Emergency procedures: The station is equipped with an alarm system with no visual back-up. All evacuation is monitored by station staff.

Use, complaints, etc.: Personnel do not recall any complaints from deaf or hard of hearing users. There is frequent use by deaf and hard of hearing students from a near by School for the Deaf. Often, children from the school travel in bus groups to the station.

R3

Station: Opened in 1966. It has been gradually modified and modernized. The station is essentially circular and is arranged according to an open concept. Ticket sales are situated at the hub of the circle. Services, etc. are situated along the outer walls.

Communication devices: There are no devices specific to communicating with deaf and hard of hearing users. No TDDs are available in the station, although the manager is aware of one at central bookings. In general, any deaf or hard of hearing communications are done with a pencil and a pad of paper.

There is one adjustable volume phone available. It is mounted in a wheelchair accessible phone console. It is clearly marked with pictogram and instructional diagram.

Traveller information: Arrivals and departures are announced over the public address system. Announcements are fairly clear and easily understood. There is little background noise. Visual back-up is provided through large arrival and departure boards near the platform gates. These are centrally located and visible from most sections of the station. (The placement of a desk in front of the boards does create some visual obstruction). A large green flashing light indicates the area for this information, as well as for general information. This is easily seen from most points in the station. There might be some question as to the purpose of this light, as this is not clearly indicated. (A researcher was told in another train station that this indicated boarding.) Travellers or visitors would have to be told specifically to go there for information.

Services within the station are not identified by pictograms. A panel of backlit signs (black on white) indicate services in words. This is adequate, as it is clearly seen, and is in both official languages. A standard wheelchair pictogram is used to indicate an accessible barber shop. All signage is clearly visible from most points in the station.

Special procedures for deaf and hard of hearing users: There is no real training for staff with regards to the needs of deaf and hard of hearing users. In general, pre-boarding will be used if station personnel are warned in advance by the traveller or by central reservations. Frequently, there is no warning as travellers "book through travel agents." Where pre-boarding is used, station staff at the destination are also notified.

The ticket sales counter has a recently installed low counter for wheelchair accessibility, although this has no advantages for most deaf and hard of hearing people.

Emergency procedures: There are no emergency procedures or features with the deaf and hard of hearing user in mind. No strobe lights or flashers are located in

washrooms. Announcements are not made over the public address to avoid panic. Station staff circulate among crowds, guiding them toward exits.

Use, complaints, etc.: Management was not aware of any complaints which have come from hard of hearing individuals, although there may be some in VIA's central logbook. We could have access to this if necessary. Also, there is no real idea of the number of hard of hearing passengers to make use of the station, although the feeling is that it is probably not large.

R4

Station: One of the largest stations in Canada. It is part of a complex which includes commuter bus and train services, as well as local transit. The facilities are used by people of all ages throughout the year.

Communication devices: The station is equipped with a TDD which, according to the Station Manager, is seldom used. Most hard of hearing or deaf travellers have continued to communicate with Via Rail staff via pen and paper. The TDD does not seem to be available for the personal use of travellers, and no signage indicates its presence in the station.

Of the forty telephone banks in the station, there are a total of ten adjustable volume phones. These are scattered throughout the various phone banks. There is no evidence of signage to guide travellers to these phones. Phones themselves are clearly marked with a pictogram and instructional diagram.

Traveller information: For the most part, the station tends to be somewhat information heavy, with pictograms, CRT monitors, public address system, visual displays and human information resources available to the traveller.

As in most VIA stations, arrivals and departures are announced on the public address system This system is currently slated for replacement. Visual back-up is provided in the form of CRT monitors positioned throughout the station, as well as a new information board, recently installed above the central information booth. This board provides all passengers with departure/arrival information (ie. time, track.)

Pictograms and signage throughout the station are very clear and well laid out. Signage within the station is continually being up-dated. New pictograms which are larger and easier to understand have also been installed.

Special procedures for deaf and hard of hearing users: According to VIA authorities, staff are instructed in the proper communication with deaf and hard of hearing passengers, including the necessity of making eye contact.

Passengers with special needs are identified to staff members by special codes which are placed on an individual's reservation file, when booking their ticket. Codes may

describe the nature an individual's handicap or specify the type of assistance the person requires (ie., special diet, help getting on and off of the train, language/hearing impairment, etc.)

When required, Red Caps (porters) are available for the assistance of passengers with special needs. Red Caps are found in the station's central lobby under a red illuminated ball. They also circulate throughout key areas of the station.

Additional information and assistance for travellers is available at information booths located in the main concourse and in the departure/arrival area.

Emergency procedures: Passengers would be alerted about the occurrence of an emergency by staff members and by the ringing of bells and sirens. Deaf or hard of hearing passengers would notice the circulating staff. Mock evacuations are practised within the station once a year.

Use, complaints etc..: Staff are unaware of any complaints to any Via Rail station in Canada by hard of hearing or deaf passengers.

R5

Station: A simple, classic station. It is not heavily staffed. In fact, the entire public contact contingent consists of one attendant, who has had little experience with deaf or hard of hearing travellers.

Communication devices: There is a bank of telephones in the street-entrance vestibule (see photo) with one adjustable volume phone available. This phone is clearly marked. No TDD is available in the station. The clerk on duty was, however, aware that one was available at the Toronto office.

Traveller Information: For the most part, signs are of poor quality. This does not, however, create problems as none are really needed. The station is simply laid out and most points are visible from the waiting area.

Arrivals and departures are announced by voice. There is no visual back-up. Again, this creates few problems, as there will rarely be more than one train moving through the station at a time, and all activity is visible.

Special procedures for deaf and hard of hearing users: According to Marthe Fortin (Project Manager: Special Needs) at VIA's head office, all "new employees" receive half a day's "sensitization" to the needs of the disabled, including deaf and hard of hearing clients.

Emergency procedures: This information is not available, although, based on research at other VIA stations, we might assume that evacuation and/or emergency is announced through the use of audible signals with staff back-up. According to VIA

administration, a new emergency plan is currently being formulated for this station, which has been acquired from its previous owner in recent months.

Use, complaints, etc.: Again, personnel do not recall any complaints from deaf or hard of hearing users. As well, there is no clear idea of use patterns.

Note: This station is currently undergoing a major overhaul which was scheduled to be finished by the end of 1988. A number of improvements are planned, although these deal primarily with physical and mechanical upgrade. The official company release makes no mention of an upgrade to facilities for the disabled.

APPENDIX 2:
SURVEY INSTRUMENTS
Transportation Facilities and the Hard of Hearing
A Review of Accessibility

SECTION 1 — AIRPORTS AND AIRPLANE TRAVEL

In this section on airports and airplane travel, we are interested in your personal experiences in *Canadian airports* as a hard of hearing person. These experiences could have been (1) as a person leaving on a trip or returning from a trip or (2) as a person saying hello or good-bye to travellers.

1. How many airports have you been in, in Canada? **Check one box only.**
   ☐ 1-3 ☐ 4-6 ☐ 7-9 ☐ 10 or more.

   If you have never been in a Canadian airport, please go to Section 2—Railway Stations and Train Travel

2. Thinking about Canadian airports you have been in during the past 3 years, *which one* had the *most helpful* things for you as a *hard of hearing person*? (Examples include telephones, TDD's, good directions, etc.)

   Name and location of airport (city, province)_____

   Why did you pick this airport? Please explain. If you need more space for your answer, please use the back of this page and be sure write "Question 2" next to it.

   _____

   _____

   _____

   _____

3. When you visited the airport described above, were you a.....

   ☐ traveller — (leaving on a trip or returning from a trip)
   ☐ well-wisher — (saying hello or good-bye to travellers)
   ☐ other (please explain) _____

4. Again, thinking about Canadian airports you have been in, which one presented the *most problems* for you as a *hard of hearing person*?

   Name and location of airport (city, province)_____

   Why did you pick this airport? Please explain. If you need more space for your answer, please use the back of this page and be sure write "Question 4" next to it.

_____

_____

_____

5. When you visited the airport described above, were you a.....

☐ traveller — (leaving on a trip or returning from a trip)
☐ well-wisher — (saying hello or good-bye to travellers)
☐ other (please explain) _____

6a. Have you, as a *hard of hearing individual*, experienced any problems in Canadian airports with.....

Talking to ticket/reservation staff	☐ Yes ☐ No
Flight announcements when checking in	☐ Yes ☐ No
Flight announcements while waiting to leave	☐ Yes ☐ No
Announcements on radio band	☐ Yes ☐ No
Finding aids for the hard of hearing — (such as telephones, TDD, infra- red systems)	☐ Yes ☐ No
Passenger announcements (ex."Mr. Smith, please come to the information desk.")	☐ Yes ☐ No
Baggage information	☐ Yes ☐ No
Airport information about city buses, hotels.....	☐ Yes ☐ No
Security checks	☐ Yes ☐ No
Background noise	☐ Yes ☐ No
Customs	☐ Yes ☐ No
Immigration	☐ Yes ☐ No

Other, please list _____

_____

6b. Please comment on any of the above that you had problems with.

_____

_____

_____

7. Many airports now have telephones specially designed for use by *hard of hearing people*. In your experience, how would you rate these telephones on the following? For any that do not apply to you, please check "does not apply"

Easy to use with your hearing aid	☐ Yes ☐ No ☐ Does not apply
Easy to find / well marked	☐ Yes ☐ No ☐ Does not apply
Sufficient number of telephones with volume controls	☐ Yes ☐ No ☐ Does not apply
Conveniently located	☐ Yes ☐ No ☐ Does not apply
Can be used with comfort by someone with/without a mobility aid (ex. wheelchair)	☐ Yes ☐ No ☐ Does not apply
TDD adaptable	☐ Yes ☐ No ☐ Does not apply

8. In the airport, you often meet a number of staff such as ticket staff, porters, baggage staff, and so on. How would you describe their behaviour towards you? In your experience, are they usually.....

helpful, understanding	☐ Yes ☐ No
patient of your hearing impairment	☐ Yes ☐ No
able to communicate by other methods	☐ Yes ☐ No
aware of the difficulties faced by the hard of hearing	☐ Yes ☐ No
aware of need for looking directly at hard of hearing person	☐ Yes ☐ No

9. As a hard of hearing person, what kind of improvements would you like to see in Canadian airports ?

_____

_____

_____

_____

10. In the past 3 years, how many <u>airplane trips</u> have you taken in which you arrived and/or departed from a Canadian airport? (A trip where you left home and then returned home counts as 2 trips.) **Check one box only.**

☐ None — please go to Section 2
☐ 1-3 trips ☐ 4-6 trips ☐ 7-9 trips ☐ 10 or more trips

11. <u>Most</u> of these trips were.... **Check one box only**

☐ Made mostly for a holiday/vacation
☐ Mainly work-related
☐ Made mainly to visit family/friends
☐ A combination of vacation and visits to family/friends
☐ other

12. When you made these airplane trips how did you usually travel to and/or from the airport? **Check one box only**.

☐ taxi or limousine ☐ airport shuttle/public transit ☐ private car
☐ other, please explain _____

13. In reference to Question 12, did you have any problems travelling to and from the airport? Please explain.

_____

_____

14a. While onboard a plane, did you ever have problems with....

messages, instructions over the PA system	☐ Yes ☐ No
safety information	☐ Yes ☐ No
communicating with flight staff	☐ Yes ☐ No
movies or other entertainment	☐ Yes ☐ No

14b. Please comment on any of the above that you had problems with.

SECTION 2 — RAILWAY STATIONS AND TRAIN TRAVEL

In this section on railway stations and train travel, we are interested in your personal experiences in railway stations as a *hard of hearing person.* Your experiences in railway stations could have been (1) as a person leaving on a trip or returning from a trip or (2) as a person saying hello or good-bye to travellers.

15. Approximately how many railway stations have you been in, in Canada?
Check one box only. ☐ 1-3 ☐ 4-6 ☐ 7-9 ☐ 10 or more.

If you have never been in a railway station, please go to Section 3—Buses and Bus Travel

16. Thinking about Canadian railway stations you have been in during the past 3 years, *which one* had the *most helpful* things for you as a *hard of hearing person?* (Examples include telephones, TDD's, good directions, etc .)

Name and location of station (city, province)_____

Why did you pick this station? Please explain. If you need more space for your answer, please use the back of this page and be sure to write "Question 16" next to it.

17. When you visited the station described above, were you a.....

☐ traveller — (leaving on a trip or returning from a trip)
☐ well-wisher — (saying hello or good-bye to travellers)
☐ other (please explain) _____

18. Again, thinking about Canadian railway stations you have been in, which one presented the *most problems* for you as a *hard of hearing person*?

Name and location of station (city, province)_____

Why did you pick this station? Please explain. If you need more space for your answer, please use the back of this page and be sure to write "Question 18" next to it.

_____

_____

_____

_____

19. When you visited the station described above, were you a.....

☐ traveller — (leaving on a trip or returning from a trip)
☐ well-wisher — (saying hello or good-bye to travellers)
☐ other (please explain) _____

20. Have you, as a hard of hearing individual, experienced any problems in Canadian railway stations with.....

Talking to ticket/reservation staff	☐ Yes ☐ No
Train announcements when checking in	☐ Yes ☐ No
Train announcements while waiting to board	☐ Yes ☐ No
Finding aids for the hard of hearing— (such as telephones, TDD, infra- red systems)	☐ Yes ☐ No
Passenger announcements (ex."Mr. Smith, please come to the information desk.")	☐ Yes ☐ No
Baggage information	☐ Yes ☐ No
Station information about city buses, hotels.....	☐ Yes ☐ No
Background noise	☐ Yes ☐ No
Other, please list _____	

_____

20b. Please comment on any of the above that you had problems with.

_____

_____

_____

21. Many stations now have telephones specially designed for use by hard of hearing people. In your experience, how would you rate these telephones on the following? For any that do not apply to you, please check "does not apply"

Easy to use with your hearing aid	☐ Yes ☐ No ☐ Does not apply
Easy to find / well marked	☐ Yes ☐ No ☐ Does not apply
Sufficient number of telephones with volume controls	☐ Yes ☐ No ☐ Does not apply
Conveniently located	☐ Yes ☐ No ☐ Does not apply
Can be used with comfort by someone with/without a mobility aid (ex. wheelchair)	☐ Yes ☐ No ☐ Does not apply
TDD adaptable	☐ Yes ☐ No ☐ Does not apply

22. In the station, you often meet a number of staff such as ticket staff, porters, baggage staff, and so on. How would you describe their behaviour towards you? In your experience, are they usually.....

helpful, understanding	☐ Yes ☐ No
patient with your hearing impairment	☐ Yes ☐ No
able to communicate by other methods	☐ Yes ☐ No
aware of the difficulties faced by the hard of hearing	☐ Yes ☐ No
aware of need for looking directly at hard of hearing person	☐ Yes ☐ No

23. As a hard of hearing person, what kind of improvements would you like to see in Canadian railway stations ?

_____

_____

_____

_____

24. In the past 3 years, how many train trips have you taken in which you arrived and/or departed from a railway station? (Note: A trip where you left home and then returned home counts as 2 trips.) **Check one box only.**

☐ None — please go to Section 3
☐ 1-3 trips ☐ 4-6 trips ☐ 7-9 trips ☐ 10 or more trips

25. Most of these trips were.... **Check one box only**

☐ Made mostly for a holiday/vacation
☐ Mainly work-related

☐ Made mainly to visit family/friends
☐ A combination of vacation and visits to family/friends
☐ other _____

26. When you made these train trips, how did you usually travel to the station? **Check one box only.**

☐ taxi/limousine ☐ public transit ☐ car
☐ other, please explain _____

27. In reference to Question 26, did you have any problems travelling to and from the station? Please explain.

_____

_____

_____

28a. While you were in the train, did you ever have problems with.....

messages, instructions over the PA system	☐ Yes ☐ No
safety information	☐ Yes ☐ No
communicating with train staff	☐ Yes ☐ No

28b. Please comment on any of the above that you had problems with.

_____

_____

_____

SECTION 3 — EUS STATIONS AND BUS TRAVEL

In this section on bus stations and bus travel, we are interested in your personal experiences in bus stations as a *hard of hearing person.* Your experiences in bus stations could have been (1) as a person leaving on a trip or returning from a trip or (2) as a person saying hello or good-bye to travellers.

29. Approximately how many bus stations have you been in, in Canada?
Check one box only. ☐ 1-3 ☐ 4-6 ☐ 7-9 ☐ 10 or more.

If you have never been in a bus station, please go to Section 4—Ferry Terminals

30. Thinking about Canadian bus stations you have been in during the past 3 years, *which one* had the *most helpful* things for you as a *hard of hearing person?* (Examples include telephones, TDD's, good directions, etc .)

Name and location of station (city, province)_____

Why did you pick this station? Please explain. If you need more space for your answer, please use the back of this page and be sure to write "Question 30" next to it.

_____

_____

_____

_____

31. When you visited the station described above, were you a.....

☐ traveller — (leaving on a trip or returning from a trip)
☐ well-wisher — (saying hello or good-bye to travellers)
☐ other (please explain) _____

32. Again, thinking about Canadian bus stations you have been in, which one presented the *most problems* for you as a *hard of hearing person*?

Name and location of station (city, province)_____

Why did you pick this station? Please explain. If you need more space for your answer, please use the back of this page and be sure to write "Question 32" next to it.

_____

_____

_____

_____

33. When you visited the station described above, were you a.....

☐ traveller — (leaving on a trip or returning from a trip)
☐ well-wisher — (saying hello or good-bye to travellers)
☐ other (please explain) _____

34a. Have you, as a hard of hearing individual, experienced any problems in Canadian bus stations with.....

Talking to ticket/reservation staff	☐ Yes ☐ No
Announcements when checking in	☐ Yes ☐ No
Announcements while waiting to board	☐ Yes ☐ No
Finding aids for the hard of hearing— (such as telephones, TDD, infra- red systems)	☐ Yes ☐ No
Passenger announcements (ex. "Mr. Smith, please	

come to the information desk.")	☐ Yes ☐ No
Baggage information	☐ Yes ☐ No
Station information about city buses, hotels.....	☐ Yes ☐ No
Background noise	☐ Yes ☐ No

Other, please list _____

_____

34b. Please comment on any of the above that you had problems with.

_____

_____

_____

35. Many stations now have telephones specially designed for use by hard of hearing people. In your experience, how would you rate these telephones on the following? For any that do not apply to you, please check "does not apply"

Easy to use with your hearing aid	☐ Yes ☐ No ☐ Does not apply
Easy to find / well marked	☐ Yes ☐ No ☐ Does not apply
Sufficient number of telephones with volume controls	☐ Yes ☐ No ☐ Does not apply
Conveniently located	☐ Yes ☐ No ☐ Does not apply
Can be used with comfort by someone with/without a mobility aid (ex. wheelchair)	☐ Yes ☐ No ☐ Does not apply
TDD adaptable	☐ Yes ☐ No ☐ Does not apply

36. In the station, you often meet a number of staff such as ticket staff, porters, baggage staff, and so on. How would you describe their behaviour towards you? In your experience, are they usually.....

helpful, understanding	☐ Yes ☐ No
patient with your hearing impairment	☐ Yes ☐ No
able to communicate by other methods	☐ Yes ☐ No
aware of the difficulties faced by the hard of hearing	☐ Yes ☐ No
aware of need for looking directly at hard of hearing person	☐ Yes ☐ No

37. As a hard of hearing person, what kind of improvements would you like to see in Canadian bus stations ?

_____

_____

_____

_____

38. In the past 3 years, how many bus trips have you taken in which you arrived and/or departed from a bus station? (A trip where you left home and then returned home counts as 2 trips.) **Check one box only**.

☐ None — please go to Section 4
☐ 1-3 trips ☐ 4-6 trips ☐ 7-9 trips ☐ 10 or more trips

39. Most of these trips were.... **Check one box only**

☐ Made mostly for a holiday/vacation
☐ Mainly work-related
☐ Made mainly to visit family/friends
☐ A combination of vacation and visits to family/friends
☐ other _____

40. When you made these bus trips, how did you usually travel to the station? **Check one box only.**

☐ taxi/limousine ☐ public transit ☐ car
☐ other, please explain _____

41. In reference to Question 40, did you have any problems travelling to and from the station? Please explain.

_____

_____

_____

42a. While you were in the bus, did you ever have problems with.....

messages, instructions over the PA system	☐ Yes ☐ No
safety information	☐ Yes ☐ No
communicating with bus staff	☐ Yes ☐ No

42b. Please comment on any of the above that you had problems with.

_____

_____

_____

SECTION 4 — FERRY TERMINALS

In this section on ferry terminals we are interested in your personal experiences in Canadian ferry terminals as a *hard of hearing person.* Your experiences in ferry terminals could have been (1) as a person leaving on a trip or returning from a trip or (2) as a person saying hello or good-bye to travellers.

43. Approximately how many ferry terminals have you been in, in Canada?
Check one box only. ☐ 1-3 ☐ 4-6 ☐ 7-9 ☐ 10 or more.

If you have never been in a ferry terminal, please go to Section 5

44. Thinking about Canadian ferry terminals you have been in during the past 3 years, *which one* had the *most helpful* things for you as a *hard of hearing person?* (Examples include telephones, TDD's, good directions, etc .)

Name and location of terminal (city, province)_____

Why did you pick this terminal? Please explain. If you need more space for your answer, please use the back of this page and be sure to write "Question 44" next to it.

_____

_____

_____

_____

45. When you visited the ferry terminal described above, were ycu a.....

☐ traveller — (leaving on a trip or returning from a trip)
☐ well-wisher — (saying hello or good-bye to travellers)
☐ other (please explain) _____

46. Again, thinking about Canadian ferry terminals you have been in, which one presented the *most problems* for you as a *hard of hearing person*?

Name and location of station (city, province)_____

Why did you pick this terminal? Please explain. If you need more space for your answer, please use the back of this page and be sure to write "Question 46" next to it.

_____

_____

_____

_____

47. When you visited the terminal described above, were you a.....

☐ traveller — (leaving on a trip or returning from a trip)
☐ well-wisher — (saying hello or good-bye to travellers)
☐ other (please explain) _____

48a. Have you, as a hard of hearing individual, experienced any problems in Canadian ferry terminals with.....

Talking to ticket/reservation staff	☐ Yes ☐ No
Announcements when checking in	☐ Yes ☐ No
Announcements while waiting to board	☐ Yes ☐ No
Finding aids for the hard of hearing— (such as telephones, TDD, infra- red systems)	☐ Yes ☐ No
Passenger announcements (ex. "Mr. Smith, please come to the information desk.")	☐ Yes ☐ No
Baggage information	☐ Yes ☐ No
Terminal information about city buses, hotels.....	☐ Yes ☐ No
Background noise	☐ Yes ☐ No
Other, please list _____	
_____	

48b. Please comment on any of the above that you had problems with.

_____

_____

_____

49. Many terminals now have telephones specially designed for use by hard of hearing people. In your experience, how would you rate these telephones on the following? For any that do not apply to you, please check "does not apply"

Easy to use with your hearing aid	☐ Yes ☐ No ☐ Does not apply
Easy to find / well marked	☐ Yes ☐ No ☐ Does not apply
Sufficient number of telephones with volume controls	☐ Yes ☐ No ☐ Does not apply
Conveniently located	☐ Yes ☐ No ☐ Does not apply
Can be used with comfort by someone with/without a mobility aid (ex. wheelchair)	☐ Yes ☐ No ☐ Does not apply
TDD adaptable	☐ Yes ☐ No ☐ Does not apply

50. In the terminal, you often meet a number of staff such as ticket staff, porters, baggage staff, and so on. How would you describe their behaviour towards you? In your experience, are they usually.....

helpful, understanding ☐ Yes ☐ No

patient with your hearing impairment	☐ Yes ☐ No
able to communicate by other methods	☐ Yes ☐ No
aware of the difficulties faced by the hard of hearing	☐ Yes ☐ No
aware of need for looking directly at hard of hearing person	☐ Yes ☐ No

51. As a hard of hearing person, what kind of improvements would you like to see in Canadian ferry terminals ?

_____

_____

_____

_____

52. In the past 3 years, how many ferry trips have you taken in which you arrived and/or departed from a ferry terminal? (A trip where you left home and then returned home counts as 2 trips.) **Check one box only**.

☐ None — please go to Section 5
☐ 1-3 trips ☐ 4-6 trips ☐ 7-9 trips ☐ 10 or more trips

53. Most of these trips were.... **Check one box only**

☐ Made mostly for a holiday/vacation
☐ Mainly work-related
☐ Made mainly to visit family/friends
☐ A combination of vacation and visits to family/friends
☐ other _____

54. When you made these ferry trips, how did you usually travel to the terminal? **Check one box only.**

☐ taxi/limousine ☐ public transit ☐ car
☐ other, please explain _____

55. In reference to Question 54, did you have any problems travelling to and from the terminal? Please explain.

_____

_____

_____

56a. While you were in the terminal, did you ever have problems with.....

messages, instructions over the PA system	☐ Yes ☐ No
safety information	☐ Yes ☐ No
communicating with ferry staff	☐ Yes ☐ No

56b. Please comment on any of the above that you had problems with.

_____

_____

_____

SECTION 5 — Personal Information

57. May we ask, are you.....

☐ Deaf
☐ Severely hard of hearing
☐ Moderately hard of hearing
☐ Mildly hard of hearing

58. How long have you had your hearing loss?

☐ Since birth or early childhood (before learning to speak)
☐ Since age 4-12
☐ Since age 13-21
☐ After age 22

59. Which of the following do you use to help you communicate with others?
Check one or more.

☐ Sign language
☐ Speech reading
☐ Hearing aids
☐ Hearing aids combined with speech reading
☐ Hearing aids with directional microphones
☐ Hearing ear dog
☐ Hearing person (family member, friend)
☐ Oral or sign language interpreter

60. Could we please ask you to indicate your age?

☐ under 18 ☐ 18-21 ☐ 22-29 ☐ 30-39 ☐ 40-49 ☐ 50-59 ☐ over 60

61a. How do you usually book your trips?

☐ at the ticket booth in the station or terminal
☐ at central reservations by phone
☐ through travel agent

61b. Have you had any problems booking trips? Please explain.

_____

_____

_____

_____

62. If you have not been in an airport, railway or bus station, or ferry terminal in the past 3 years, may we ask why?

☐ Never travel
☐ Always use a car
☐ Terminals generally not accessible for me
☐ Other,_____

_____

Transportation Facilities and the Deaf
A Review of Accessibility

SECTION 1 — AIRPORTS AND AIRPLANE TRAVEL

In this section on airports and airplane travel, we are interested in your personal experiences in *Canadian airports* as a deaf person. These experiences could have been (1) as a person leaving on a trip or returning from a trip or (2) as a person saying hello or good-bye to travellers.

1. How many airports have you been in, in Canada? **Check one box only.**
   ☐ 1-3 ☐ 4-6 ☐ 7-9 ☐ 10 or more.

   If you have never been in a Canadian airport, please go to Section 2—Railway Stations and Train Travel

2. Thinking about Canadian airports you have been in during the past 3 years, *which one* had the *most helpful* things for you as a *deaf person?* (Examples include TDD's, good directions, etc.)

   Name and location of airport (city, province)_____

   Why did you pick this airport? Please explain. If you need more space for your answer, please use the back of this page and be sure write "Question 2" next to it.

   _____

   _____

   _____

   _____

3. When you visited the airport described above, were you a.....

   ☐ traveller — (leaving on a trip or returning from a trip)
   ☐ well-wisher — (saying hello or good-bye to travellers)
   ☐ other (please explain) _____

4. Again, thinking about Canadian airports you have been in, which one presented the *most problems* for you as a *deaf person*?

   Name and location of airport (city, province)_____

   Why did you pick this airport? Please explain. If you need more space for your answer, please use the back of this page and be sure write "Question 4" next to it.

   _____

   _____

   _____

5. When you visited the airport described above, were you a.....

☐ traveller — (leaving on a trip or returning from a trip)
☐ well-wisher — (saying hello or good-bye to travellers)
☐ other (please explain) _____

6a. Have you, as a *deaf individual*, experienced any problems in Canadian airports with.....

Talking to ticket/reservation staff	☐ Yes ☐ No
Flight announcements when checking in	☐ Yes ☐ No
Flight announcements while waiting to leave	☐ Yes ☐ No
Finding aids for the deaf (such as TDD)	☐ Yes ☐ No
Passenger announcements (ex. "Mr. Smith, please come to the information desk.")	☐ Yes ☐ No
Baggage information	☐ Yes ☐ No
Airport information about city buses, hotels.....	☐ Yes ☐ No
Security checks	☐ Yes ☐ No
Customs	☐ Yes ☐ No
Immigration	☐ Yes ☐ No
Other, please list _____	

_____

6b. Please explain any of the above that you had problems with.

_____

_____

_____

7. Many airports now have telephones specially designed for use by *deaf and hard of hearing people*. In your experience, how would you rate these telephones on the following? For any that do not apply to you, please check "does not apply"

Easy to find / well marked	☐ Yes ☐ No ☐ Does not apply
In good places	☐ Yes ☐ No ☐ Does not apply
Can be used with comfort by someone with/without a wheelchair	☐ Yes ☐ No ☐ Does not apply
Easy to use with a TDD	☐ Yes ☐ No ☐ Does not apply

8. In the airport, you often meet a number of staff such as ticket staff, porters, baggage staff, and so on. How would you describe their behaviour towardsyou? In your experience, are they usually.....

helpful, understanding	☐ Yes ☐ No
patient with your deafness	☐ Yes ☐ No
willing to use paper and pencil	☐ Yes ☐ No
aware of the difficulties faced by the deaf	☐ Yes ☐ No
aware of need for looking directly at a deaf person	☐ Yes ☐ No

9. As a deaf person, what kind of improvements would you like to see in Canadian airports ?

_____

_____

_____

_____

10. In the past 3 years, how many airplane trips have you taken in which you arrived and/or departed from a Canadian airport? (A trip where you left home and then returned home counts as 2 trips.) **Check one box only.**

☐ None — please go to Section 2
☐ 1-3 trips ☐ 4-6 trips ☐ 7-9 trips ☐ 10 or more trips

11. Most of these trips were.... **Check one box only**

☐ Made mostly for a holiday/vacation
☐ Mainly work-related
☐ Made mainly to visit family/friends
☐ A combination of vacation and visits to family/friends
☐ other

12. When you made these airplane trips how did you usually travel to and/or from the airport? **Check one box only**.

☐ taxi or limousine ☐ airport shuttle/public transit ☐ private car
☐ other, please explain _____

13. In reference to Question 12, did you have any problems travelling to and from the airport? Please explain.

_____

_____

_____

14a. While onboard a plane, did you ever have problems with....

messages, instructions over the PA system	☐ Yes ☐ No
safety information	☐ Yes ☐ No
communicating with flight staff	☐ Yes ☐ No
movies or other entertainment	☐ Yes ☐ No

14b. Please explain any of the above that you had problems with.

_____

_____

_____

SECTION 2 — RAILWAY STATIONS AND TRAIN TRAVEL

In this section on railway stations and train travel, we are interested in your personal experiences in railway stations as a *deaf person*. Your experiences in railway stations could have been (1) as a person leaving on a trip or returning from a trip or (2) as a person saying hello or good-bye to travellers.

15. Approximately how many railway stations have you been in, in Canada?
Check one box only. ☐ 1-3 ☐ 4-6 ☐ 7-9 ☐ 10 or more.

If you have never been in a railway station, please go to Section 3—Bus Stations and Bus Travel

16. Thinking about Canadian railway stations you have been in during the past 3 years, *which one* had the *most helpful* things for you as a *deaf person?* (Examples include TDD's, good directions, etc .)

Name and location of station (city, province)_____

Why did you pick this station? Please explain. If you need more space for your answer, please use the back of this page and be sure to write "Question 16" next to it.

_____

_____

_____

_____

17. When you visited the station described above, were you a.....

☐ traveller — (leaving on a trip or returning from a trip)
☐ well-wisher — (saying hello or good-bye to travellers)
☐ other (please explain) _____

18. Again, thinking about Canadian railway stations you have been in, which one presented the *most problems* for you as a *deaf person*?

Name and location of station (city, province)_____

Why did you pick this station? Please explain. If you need more space for your answer, please use the back of this page and be sure to write "Question 18" next to it.

_____

_____

_____

_____

19. When you visited the station described above, were you a.....

☐ traveller — (leaving on a trip or returning from a trip)
☐ well-wisher — (saying hello or good-bye to travellers)
☐ other (please explain) _____

20. Have you, as a deaf individual, experienced any problems in Canadian railway stations with.....

Talking to ticket/reservation staff	☐ Yes ☐ No
Train announcements when checking in	☐ Yes ☐ No
Train announcements while waiting to board	☐ Yes ☐ No
Finding aids for the deaf (such as TDD)	☐ Yes ☐ No
Passenger announcements (ex. "Mr. Smith, please come to the information desk.")	☐ Yes ☐ No
Baggage information	☐ Yes ☐ No
Station information about city buses, hotels.....	☐ Yes ☐ No
Customs	☐ Yes ☐ No
Immigration	☐ Yes ☐ No
Other, please list _____	

_____

20b. Please explain any of the above that you had problems with.

_____

_____

_____

21. Many stations now have telephones specially designed for use by *deaf and hard of hearing people*. In your experience, how would you rate these telephones on the following? For any that do not apply to you, please check "does not apply"

Easy to find / well marked	☐ Yes ☐ No ☐ Does not apply
In good places	☐ Yes ☐ No ☐ Does not apply
Can be used with comfort by someone with/without a wheelchair	☐ Yes ☐ No ☐ Does not apply
Easy to use with a TDD	☐ Yes ☐ No ☐ Does not apply

22. In the station, you often meet a number of staff such as ticket staff, porters, baggage staff, and so on. How would you describe their behaviour towards you? In your experience, are they usually.....

helpful, understanding	☐ Yes ☐ No
patient with your deafness	☐ Yes ☐ No
willing to use paper and pencil	☐ Yes ☐ No
aware of the difficulties faced by the deaf	☐ Yes ☐ No
aware of need for looking directly at deaf person	☐ Yes ☐ No

23. As a deaf person, what kind of improvements would you like to see in Canadian railway stations ?

_____

_____

_____

_____

24. In the past 3 years, how many train trips have you taken in which you arrived and/or departed from a railway station? (Note: A trip where you left home and then returned home counts as 2 trips.) **Check one box only**.

☐ None — please go to Section 3
☐ 1-3 trips ☐ 4-6 trips ☐ 7-9 trips ☐ 10 or more trips

25. Most of these trips were.... **Check one box only**

☐ Made mostly for a holiday/vacation
☐ Mainly work-related
☐ Made mainly to visit family/friends
☐ A combination of vacation and visits to family/friends
☐ other _____

26. When you made these train trips, how did you usually travel to the station? **Check one box only.**

☐ taxi/limousine ☐ public transit ☐ car
☐ other, please explain _____

27. In reference to Question 26, did you have any problems travelling to and from the station? Please explain.

_____

_____ _____

28a. While you were in the train, did you ever have problems with.....

messages, instructions over the PA system	☐ Yes ☐ No
safety information	☐ Yes ☐ No
communicating with train staff	☐ Yes ☐ No

28b. Please explain any of the above that you had problems with.

_____

_____

_____

SECTION 3 — BUS STATIONS AND BUS TRAVEL

In this section on bus stations and bus travel, we are interested in your personal experiences in bus stations as a *deaf person.* Your experiences in bus stations could have been (1) as a person leaving on a trip or returning from a trip or (2) as a person saying hello or good-bye to travellers.

29. Approximately how many bus stations have you been in, in Canada?
Check one box only. ☐ 1-3 ☐ 4-6 ☐ 7-9 ☐ 10 or more.

If you have never been in a bus station, please go to Section 4—Ferry Terminals

30. Thinking about Canadian bus stations you have been in during the past 3 years, *which one* had the *most helpful* things for you as a *deaf person?* (Examples include TDD's, good directions, etc .)

Name and location of station (city, province)_____

Why did you pick this station? Please explain. If you need more space for your answer, please use the back of this page and be sure to write "Question 30" next to it.

_____

_____

_____

_____

31. When you visited the station described above, were you a.....

☐ traveller — (leaving on a trip or returning from a trip)
☐ well-wisher — (saying hello or good-bye to travellers)

☐ other (please explain) _____

32. Again, thinking about Canadian bus stations you have been in, which one presented the *most problems* for you as a *deaf person*?

Name and location of station (city, province)_____

Why did you pick this station? Please explain. If you need more space for your answer, please use the back of this page and be sure to write "Question 32" next to it.

_____

_____

_____

_____

33. When you visited the station described above, were you a.....

☐ traveller — (leaving on a trip or returning from a trip)
☐ well-wisher — (saying hello or good-bye to travellers)
☐ other (please explain) _____

34a. Have you, as a deaf individual, experienced any problems in Canadian bus stations with.....

Talking to ticket/reservation staff	☐ Yes ☐ No
Announcements when checking in	☐ Yes ☐ No
Announcements while waiting to board	☐ Yes ☐ No
Finding aids for the deaf (such as TDD)	☐ Yes ☐ No
Passenger announcements (ex."Mr. Smith, please come to the information desk.")	☐ Yes ☐ No
Baggage information	☐ Yes ☐ No
Station information about city buses, hotels.....	☐ Yes ☐ No
Customs	☐ Yes ☐ No
Immigration	☐ Yes ☐ No
Other, please list _____	

_____

34b. Please explain any of the above that you had problems with.

_____

_____

_____

35. Many stations now have telephones specially designed for use by *deaf and hard of hearing*

people. In your experience, how would you rate these telephones on the following? For any that do not apply to you, please check "does not apply"

Easy to find / well marked	☐ Yes ☐ No ☐ Does not apply
In good places	☐ Yes ☐ No ☐ Does not apply
Can be used with comfort by someone with/without a wheelchair	☐ Yes ☐ No ☐ Does not apply
Easy to use with a TDD	☐ Yes ☐ No ☐ Does not apply

36. In the station, you often meet a number of staff such as ticket staff, porters, baggage staff, and so on. How would you describe their behaviour towards you? In your experience, are they usually.....

helpful, understanding	☐ Yes ☐ No
patient with your deafness	☐ Yes ☐ No
willing to use paper and pencil	☐ Yes ☐ No
aware of the difficulties faced by the deaf	☐ Yes ☐ No
aware of need for looking directly at a deaf person	☐ Yes ☐ No

37. As a deaf person, what kind of improvements would you like to see in Canadian bus stations ?

_____

_____

_____

_____

38. In the past 3 years, how many <u>bus trips</u> have you taken in which you arrived and/or departed from a bus station? (A trip where you left home and then returned home counts as 2 trips.) **Check one box only**.

☐ None — please go to Section 4
☐ 1-3 trips ☐ 4-6 trips ☐ 7-9 trips ☐ 10 or more trips

39. <u>Most</u> of these trips were.... **Check one box only**

☐ Made mostly for a holiday/vacation
☐ Mainly work-related
☐ Made mainly to visit family/friends
☐ A combination of vacation and visits to family/friends
☐ other _____

40. When you made these bus trips, how did you usually travel to the station? **Check one box only.**

☐ taxi/limousine ☐ public transit ☐ car
☐ other, please explain _____

41. In reference to Question 40, did you have any problems travelling to and from the station? Please explain.

_____

_____

_____

42a. While you were in the bus, did you ever have problems with.....

messages, instructions over the PA system	☐ Yes ☐ No
safety information	☐ Yes ☐ No
communicating with bus staff	☐ Yes ☐ No

42b. Please explain any of the above that you had problems with.

_____

_____

SECTION 4 — FERRY TERMINALS

In this section on ferry terminals we are interested in your personal experiences in Canadian ferry terminals as a *deaf person*. Your experiences in ferry terminals could have been (1) as a person leaving on a trip or returning from a trip or (2) as a person saying hello or good-bye to travellers.

43. Approximately how many ferry terminals have you been in, in Canada?
Check one box only. ☐ 1-3 ☐ 4-6 ☐ 7-9 ☐ 10 or more.

If you have never been in a ferry terminal, please go to Section 5

44. Thinking about Canadian ferry terminals you have been in during the past 3 years, *which one* had the *most helpful* things for you as a *deaf person?* (Examples include TDD's, good directions, etc .)

Name and location of terminal (city, province)_____

Why did you pick this terminal? Please explain. If you need more space for your answer, please use the back of this page and be sure to write "Question 44" next to it.

_____

_____

_____

_____

45. When you visited the ferry terminal described above, were you a.....

☐ traveller — (leaving on a trip or returning from a trip)
☐ well-wisher — (saying hello or good-bye to travellers)
☐ other (please explain) _____

46. Again, thinking about Canadian ferry terminals you have been in, which one presented the *most problems* for you as a *deaf person*?

Name and location of station (city, province)_____

Why did you pick this terminal? Please explain. If you need more space for your answer, please use the back of this page and be sure to write "Question 46" next to it.

_____

_____

_____

_____

47. When you visited the terminal described above, were you a.....

☐ traveller — (leaving on a trip or returning from a trip)
☐ well-wisher — (saying hello or good-bye to travellers)
☐ other (please explain) _____

48a. Have you, as a deaf individual, experienced any problems in Canadian ferry terminals with.....

Talking to ticket/reservation staff	☐ Yes ☐ No
Announcements when checking in	☐ Yes ☐ No
Announcements while waiting to board	☐ Yes ☐ No
Finding aids for the deaf (such as TDD)	☐ Yes ☐ No
Passenger announcements (ex. "Mr. Smith, please come to the information desk.")	☐ Yes ☐ No
Baggage information	☐ Yes ☐ No
Terminal information about city buses, hotels...	☐ Yes ☐ No
Customs	☐ Yes ☐ No

Immigration ☐ Yes ☐ No

Other, please list _____

_____

48b. Please explain any of the above that you had problems with.

_____

_____

_____

49. Many terminals now have telephones specially designed for use by *deaf and hard of hearing people*. In your experience, how would you rate these telephones on the following? For any that do not apply to you, please check "does not apply"

Easy to find / well marked	☐ Yes	☐ No	☐ Does not apply
In good places	☐ Yes	☐ No	☐ Does not apply
Can be used with comfort by someone with/without a wheelchair	☐ Yes	☐ No	☐ Does not apply
Easy to use with a TDD	☐ Yes	☐ No	☐ Does not apply

50. In the terminal, you often meet a number of staff such as ticket staff, porters, baggage staff, and so on. How would you describe their behaviour towards you? In your experience, are they usually.....

helpful, understanding	☐ Yes	☐ No
patient with your deafness	☐ Yes	☐ No
willing to use paper and pencil	☐ Yes	☐ No
aware of the difficulties faced by the deaf	☐ Yes	☐ No
aware of need for looking directly at a deaf person	☐ Yes	☐ No

51. As a deaf person, what kind of improvements would you like to see in Canadian ferry terminals ?

_____

_____

_____

_____

52. In the past 3 years, how many ferry trips have you taken in which you arrived and/or departed from a ferry terminal? (A trip where you left home and then returned home counts as 2 trips.) **Check one box only**.

☐ None — please go to Section 5

☐ 1-3 trips ☐ 4-6 trips ☐ 7-9 trips ☐ 10 or more trips

53. Most of these trips were.... **Check one box only**

☐ Made mostly for a holiday/vacation
☐ Mainly work-related
☐ Made mainly to visit family/friends
☐ A combination of vacation and visits to family/friends
☐ other _____

54. When you made these ferry trips, how did you usually travel to the terminal? **Check one box only.**

☐ taxi/limousine ☐ public transit ☐ car
☐ other, please explain _____

55. In reference to Question 54, did you have any problems travelling to and from the terminal? Please explain.

_____

_____

_____

56a. While you were in the terminal, did you ever have problems with.....

messages, instructions over the PA system	☐ Yes ☐ No
safety information	☐ Yes ☐ No
communicating with ferry staff	☐ Yes ☐ No

56b. Please explain any of the above that you had problems with.

_____

_____

_____

SECTION 5 — Personal Information

57. May we ask, are you.....

☐ Deaf
☐ Severely hard of hearing
☐ Moderately hard of hearing
☐ Mildly hard of hearing

58. How long have you had your hearing loss?

☐ Since birth or early childhood (before learning to speak)
☐ Since age 4-12
☐ Since age 13-21
☐ After age 22

59. Which of the following do you use to help you communicate with others?
Check one or more.

☐ Sign language
☐ Speech reading
☐ Hearing aids
☐ Hearing aids combined with speech reading
☐ Hearing aids with directional microphones
☐ Hearing ear dog
☐ Hearing person (family member, friend)
☐ Oral or sign language interpreter

60. Could we please ask you to indicate your age?

☐ under 18 ☐ 18-21 ☐ 22-29 ☐ 30-39 ☐ 40-49 ☐ 50-59 ☐ over 60

61a. How do you usually book your trips?

☐ at ticket booth in terminal or station
☐ at central reservations by phone
☐ through travel agent

61b. Have you had any problems booking trips? Please explain.

_____

_____

_____

_____

62. If you have not been in an airport, railway or bus station, or ferry terminal in the past 3 years, may we ask why?

☐ Never travel
☐ Always use a car
☐ Terminals generally not accessible for me
☐ Other,_____

_____